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A quarterly classified summary of the latest Philippine publications in the field of science and its applications (UDC 5 and 6)

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A quarterly classified summary of the latest Philippine publications in the field of science and its applications (UDC 5 and 6)

Vol. 14, Nos. 1-2 **January-June 1973**

PHYSICS

539.1.07
Nuclear reactors - Instruments.

1. **The compatibility of Ortec and Panax machines.** Margaret S. McIlvaine (Philippine Atomic Research Center, Quezon City). Manila, Philippine Atomic Energy Commission, Nov. 1971. 3ℓ. 29p. graphs, diagr. 3 refs. [PAEC(D) 711]

Experiments on the identification of elements present in irradiated samples of rice were conducted to determine the compatibility of the Ortec and Panax machines. The calibration curves derived showed that the machines are compatible without the use of the Ortec preamplifier. The linearity of results is maintained and the spectra derived from respective sources and samples meet up with expectations even without pulse shaping. With proper instrument matching, proper calibration curves must be derived for optimum efficiency and accuracy of results.

539.172.3:539.2
Mössbauer effect.

2. **Fitting a fat Möessbauer spectrum to a Gaussian.** Donato L. Guzman, Milagros Francisco, Ana Maria de la Paz and Q. O. Navarro (Philippine Atomic Research Center, Quezon City). Manila, Philippine Atomic Energy Commission, 1971. 10p. [PAEC(D) 717]

A procedure is described which employs linearization and numerical methods of fitting Möessbauer data to a Gaussian with the use of a computer. Although Moessbauer spectra are ordinarily fitted to a Lorentzian in an unusually broad spectrum, a better fit was obtained with a Gaussian. -- Authors' Abstract

CHEMISTRY

543.8:544.68
Chemical analysis - Photometric.

3. **Comparison of the flame photometer and wet methods of sodium and potassium determination in clays and fertilizers.** Rita S. Gana (National Institute of Science & Technology, Manila). *Philippine Journal of Science,* Sept.-Dec. 1970 (1972), v.99, nos.3-4, p.191-194. tables. 7 refs.

Results of experiments showed that the flame photometer method may be substituted for the J. Lawrence Smith method of determining K in fertilizers, but not for the analysis of Na and K in clays. The J. Lawrence Smith method gave higher results for Na and lower values for K than that obtained by the flame photometer.

546.76:535.243
Spectrophotometry. Chromium.

4. **The elimination of aluminum interference in the atomic absorption spectrophotometric determination of chromium by hydroxylamine hydrochloride.** Paz A. Kapauan (Philippine Atomic Research Center, Quezon City). *Philippine Journal of Science,* March-June 1970(1972), v.99, nos.1-2, p.17-20. graph, tables. 1 ref.

Experimental data presented showed that Al depressed the absorption of Cr(III) and dichromate solutions. However, small amounts of hydroxylamine hydrochloride restored the absorption to the level of aluminum-free solutions.

547.461.2:539.12.08
Oxalic acid. Radioactivity - Measurement.

5. **Characteristics of oxalic acid as a chemical dosimeter.** N. T. Bustamante and P. Abrenilla (Philippine Atomic Research Center, Quezon City). Manila, Philippine Atomic Energy Commission, Jan. 1972. 1ℓ. 12p. graphs, tables. 4 refs. [PAEC (D) 723]

The concentration of oxalic acid irradiated with high doses of Co-60 gamma radiation was determined by titration with standard NaOH solution. Results showed that specific concentration of oxalic acid should be used for a particular dose range to obtain optimum sensitivity. The irradiated oxalic acid solution was observed to be stable up to one mo. after irradiation. The method was found suitable for measuring doses in the mega-rad region.

548.73:681.142 681.142:548.73
Crystals. Computers - Programming.

6. **Crystallographic D-space program.** L. P. Bartolome, M. C. M. Akol, M. G. Natera and Q. O. Navarro (Philippine Atomic Research Center, Quezon City). Manila, Philippine Atomic Energy

Commission, Nov. 1971. 19p. 2 refs. [PAEC (D) 7112]

A computer program designed for the calculation of d-spacings for crystal structures written in FORTRAN II language for use with a FACOM 230-20/30 machine is presented. The program generates the Miller indices hkl, applies specified space group extinctions, and calculates d-spacings, the Bragg angle as well as the Lorentz factors for cylindrical and flat samples, Lorentz polarization factor and symmetrical Lorentz factor for any crystal system.

GEOLOGY . METEOROLOGY

550.312
Geophysics - Gravitational.

7. Notes on the general character of gravity in the island of Luzon. Carlos F. Teodoro (Bureau of Mines, Manila). *Mineral Engineering Magazine*, Jan.-Feb. 1972, v.23, no.3, p.33-37. 13 refs.

The report is a qualitative description of the character of gravity in Luzon. The trend of the isogals is generally north-northwest in the southern part and north-northeast in the northern part. The hinge line coincides with the trend of the land extension of the Philippine fault zone. However, in some localities these trends are interrupted by the effects of local structural features.

The net of stations so far established revealed unusual results that pose problems requiring more detailed measurement of gravity especially in areas of known geologic setting.

550.38
Magnetism, Terrestrial. Curve fitting.

8. Application of bilogarithmic curve-fitting method in the interpretation of the ground magnetic work in Northwestern Marinduque. Pedro C. Caleon (Bureau of Mines, Manila). Manila, 1971. 28p. graphs, map, illus. 3 refs. Mimeographed. (Paper presented at the 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

Ground magnetic work was done in scattered areas using 3 vertical type magnetometers. Interpretation of the significant anomalies was carried out by the bilogarithmic curve-fitting method. The resulting fit provided information on the depth to the top causatic body, horizontal positions, "magnetic width" and geologic dip. The interpretation indicated that of the 9 significant anomalies selected, 7 are caused by plate-shaped magnetic bodies buried at depths in the order of 15 m and the other 2 are caused by horizontal, cylinder-shaped bodies burried at depths in the order of 40 m.

550.834
Geophysics - Seismic.

9. Some aspects of the application and technology of the Geoseis system of seismic prospecting. Peter G. Thompson. *Philippine Mining & Engineering Journal*, Feb. 1972, v.2, no.2, p.8, 10, 12, 14-20. tables, illus.

The new techniques of Geoseis and Aquaseis using a special design of detonating fuse made to suit field requirements are discussed. The Geoflex 200 was cited to improve the efficiency of field crew and reduce the overall cost of the operations.

550.84:553.53(914)
Prospecting - Geochemical methods.

10. The application and results of geochemical prospecting to a porphyry copper/molybdenum property in the Philippines. Anthony R. Hope. Manila, 1971. 21p. maps, tables, diagr. 2 refs. Mimeographed. (Paper presented at the 3rd Symposium on Mineral Resources Development and 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

Detailed geochemical prospecting involving analyses for Cu, Mo and Zn in samples of sediment, soil, weathered rock, gossan and assorted secondary minerals revealed an extensive porphyry Cu and Mo environment in Northern Bohol. 2 district areas, one with high Cu and Mo anomalies and another with high Cu and low Mo anomalies were isolated. Cu and Mo mineralization was apparently well distributed in the intruded and altered volcanic rocks. The detailed geochemical survey established the mode and extent of mineralization and it is stressed that results should be interpreted with close correlation to geology and other exploration data. It is suggested that the techniques used and the results of this survey would have suitable application in exploration of other porphyry Cu/Mo prospects in the Philippines.

551.49(914)
Hydrology.

11. Hydrology of the Agus River below Lake Lanao. Ali G. Macawaris. Marawi City, Mindanao State University Research Center, 1971. xii, 89p. graph, maps, tables, illus. 13 refs. (Research paper)

The general hydrologic characteristics of the Agus River particularly the mean, maximum and minimum flows, magnitude and frequency of monthly floods, and the drainage basin characteristics affecting the runoff are discussed. Based on published data, the ratio of the mean flow at Momungan to the mean flow at Marawi was found to be 1.06. 60% of the rainfall in the Agus River below Lake Lanao occurs during the first 6 mo. of the year.

551.55(914)
Winds.

12. An analysis on extreme wind speeds over the Philippines. Roman L. Kintanar (Weather Bureau, Quezon City). Manila, 1971. 59p. graphs, maps, tables. 12 refs. Mimeographed. (Paper presented at the UNESCO Regional Seminar on Wind Effects on Buildings and Structures, Nov. 22-26, 1971, Manila)

The annual maximum wind speeds recorded at 10-m level from 12 to 21 yrs at 20 selected weather stations were analyzed using Gumbel's extreme values and the method of fitting the double exponential distribution. Observations indicated the possibility of predicting the return periods corresponding to any desired annual maximum wind speeds. It was shown that the maximal values of wind speeds are generally located at the eastern sections above 10°N latitude, the distribution being influenced by exposure, topography and geographical location. The adjusted maximum wind speeds were estimated by the velocity-height relationship.

553.48
Nickel ores.

13. Ore deposition controls in certain nickel laterite deposits. Dan E. Lewis (Mining Exploration Div., A. Soriano y Cia., Makati, Rizal). Manila, 1971. 5p. 2 refs. Mimeographed. (Paper presented at the 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

Data regarding topographic, lithological and structural controls, and alteration of ore deposition on several nickeliferous laterites in the Philippines and Sabah (Malaysia) are reviewed. The presence of serpentine in the ultramafic rocks may be produced from weathering, deuteric or hydrothermal alteration from later intrusive effects.

PALEONTOLOGY

569.61(914)
Fossils.

14. Notes on the occurrence of fossil elephants and stegodonts in Solana, Cagayan, Northern Luzon, Philippines. Silvio M. Lopez (National Museum, Manila). *Journal of the Geological Society of the Philippines,* Dec. 1971, v.25, no.4, p.1-8. illus. 7 refs.

Taxonomy of the fossil fauna belonging to Proboscidea which are well represented in the Solana fauna is discussed. Family Elephantidae and Family Stegodontidae are represented by one species of Elephas and 2 species of Stegedon, respectively.

BOTANY

581.13.04:633.18
Botany - Physiology.

15. Morphological and physiological responses of crops and weeds to Trifluralin. V. Amylase activity in rice seedlings. Restituta P. Robles and Beatriz L. Mercado (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist,* Oct.-Nov. 1971, v.55, nos.5-6, p.232-238. graphs, tables. 5 refs.

The α-amylase activity of IR-8 rice seedlings treated with Trifluralin during the first 7 days of development was determined. Results showed that continuous treatment delayed amylase activity by 24 hrs; however, activity increased until the 7th day. The 24-hr treatment did not affect amylase activity except at the 4-day stage which showed an almost 2-fold increase over the untreated seedlings. The fresh weight, dry weight and protein content per tissue of treated seedlings followed a similar pattern.

581.192:635.97
Plants - Chemical composition. Anonaceae.

16. Chemical investigations on Philippine natural products. II. Constituents of Uvaria sorzogonensis Presl. Modesto T. Chua, Hilda Ras (Ateneo de Manila University, Quezon City) and Alfredo C. Santos (National Institute of Science & Technology, Manila). *Philippine Journal of Science,* Sept.-Dec. 1970(1972), v.99, nos.3-4, p.225-239. tables, illus. 6 refs.

The non-nitrogenous constituents of *Uvaria sorzogonensis* Presl., an endemic species of Anonaceae, are reported. Of the 6 substances isolated, $C_{30}H_{48}O$ and 2 isomers $C_{30}H_{50}O$ are identified and the partial structures of the other $C_{29}H_{50}O$, $C_{29}H_{48}O$ and $C_{28}H_{48}O$ are presented. Spectrometric and experimental data are included. - Authors' Abstract

581.6:581.331.2
Pollen analysis. Allergens.

17. Aeropalynological studies in the Makati area, 1968-69. Irma C. Remo and Gloria Laserna (National Institute of Science & Technology, Manila). *Philippine Journal of Science,* March-June 1970(1972), v.99, nos.1-2, p.1-11. graphs, tables. 18 refs.

Studies were conducted to determine the prevalent allergenic pollen types in the atmosphere. Gramineae was found most abundant followed by Moraceae, Leguminosae, Myrtaceae, Cyperaceae, Cruciferae, Casuarinaceae, Amaranthaceae, Compositae, Palmae and Umbelliferae in the order of decreasing abundance. Pollen count was highest in Nov. and least in June. The results were influenced by vegetation and climatological factors.

582.26(914)
Algae.

18. A survey of the littoral benthic algae of the coastal areas of Dumaguete City. Alfredo Y. Reyes (Silliman University, Dumaguete City). *Philippine Journal of Science,* Sept.-Dec. 1970 (1972), v.99, nos.3-4, p.131-163. map. 15 refs.

A total of 110 species were identified as belonging to Cyanophyta, Chlorophyta, Phaeophyta and Rhodophyta. 21 species were found edible, although only a few are eaten in the locality.

582.29:581.19
Lichens - Chemical composition.

19. Studies on Philippine lichens. III. Chemical constituents of Crocynia membranacea (dicks) Zahlbr. Patrocinio Sevilla-Santos and Lydia M. Joson (National Institute of Science & Technology, Manila). [Manila, 1971]. 7p. graphs, table, diagr. 4 refs. Typewritten.

The isolation and purification of usnic acid and zeorin from *Crocynia membranacea* are discussed. The acids were identified by their Rf values, melting point, optical rotations and infrared spectra. About 0.3527-0.6238 g usnic acid and 0.2430-0.4158 g zeorin were obtained.

582.751.9:581.192
Plants - Chemical composition. Rutaceae.

20. Chemical investigations on Philippine natural products. I. Zanthoxylum integrifoliolum (Merr.) Merr. Modesto T. Chua and Angelica Maglaya (Ateneo de Manila University, Quezon City) and Alfredo C. Santos (National Institute of Science & Technology, Manila). *Philippine Journal of Science,* Sept.-Dec. 1970(1972), v.99, nos.3-4, p.205-223. tables, illus. 17 refs.

The nitrogenous and non-nitrogenous constituents of the bark of the indigenous *Zanthoxylum integrifoliolum* (Rutaceae) are reported. Of the 6 neutral substances isolated, 4 were identified on the basis of spectral and chemical data: $C_{30}H_{48}O$, $C_{29}H_{48}O$, $C_{28}H_{46}O$ and $C_{30}H_{50}O$. Partial structures of the 3 nitrogenous components isolated are presented. - Authors' Abstract

ZOOLOGY

591.69-932-51
Rats - Diseases and pests. Angiostrongylus cantonensis.

21. Angiostrongylus cantonensis in commensal rats in Dumaguete City, Negros Oriental. Luzviminda A. Guerrero and Rafael D. Guerrero, III (Central Luzon State University, Nueva Ecija). *Acta Medica Philippina,* ser. 2, Jan.-March 1972, v.8, no.1, p.33-35. tables. 6 refs.

The first report on the presence of rat lungworm *(Angiostrongylus cantonensis)* in Dumaguete City is presented. 2 species of rats, *Rattus norvegicus* (brown rat) and *Rattus rattus mindanensis* (gray rat), were found positive for *Angiostrongylus* with a prevalence rate of 7.37 and 0.49%, respectively. Mature rats had higher infection rate than juvenile rats. No significant difference in the infection rate between male and female rats was observed. Experiments also showed that albino rats fed with *Achatina fulica* snails played an important role in the transmission of angiostrongyliasis among rats.

593.16:599.323:591.087 619:616.937:599.323
Rats - Diseases and pests. Trypanosoma evansi.

22. A biometrical study of Trypanosoma evansi in untreated and Naganol-treated white rats. Severino L. Gatapia (Bureau of Animal Industry, Mandaluyong, Rizal). *Philippine Journal of Veterinary Medicine,* Dec. 1971, v.10, no.2, p.162-173. graph, tables. 12 refs.

In untreated rats, the mean length of *Try-*

panosoma evansi varied from day to day during the course of the infection; 5.6% of the trypanosomes were within the limits of 15-20 microns and 6.4% measured 28-35 microns. In general, the trypanosome was shorter at the later stage of the disease than at other stages. In Naganol-treated rats, alteration in the mean length of the trypanosome apparently followed no definite trend. However, with high doses of Naganol, a slight decrease in length was noted with decreasing density of trypanosome in the blood.

599.74:591.089 599.74:617.54
Dogs - Surgery. Thorax.

23. The thoracic inlet of the dog. Jose A. Solis and Paul P. Sova (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* Dec. 1971, v.10, no.2, p.157-161. plates. 5 refs.

Experiments on 13 apparently healthy adult dogs revealed that the use of the thoracic inlet as an approach to surgical operation of the thorax is limited due to the small size of the thoracic aperture and the closely packed arrangement of the structures within it. However, puncture of the anterior vena cava through the thoracic aperture was found successful and the technique was applicable in cases with small veins or when the animal was in a state of shock and the superficial vessels were collapsed.

MEDICAL SCIENCES

PHYSIOLOGY

612.63:614.1
Contraception.

24. Concomitants of contraceptive used by married women in a Philippine rural area. Nena R. Bustrillos and Regina B. Areza. *Philippine Journal of Home Economics,* Oct.-Dec. 1971-Jan.-March 1972, v.22-23, nos.4, 1, p.49-60. tables.

A survey on the use of contraceptives was conducted in a village where family planning has not been introduced. The data were obtained among 235 women, aged 30.4 yrs old having been married for an average of 18.8 yrs and with an average of 4.4 children. It was observed that the methods of contraception used varied from withdrawal, continence, rhythm, chemicals to condom. The use of contraceptives increased after the 5th yr of marriage and also among those with better income. However, the data indicated that users of contraceptives with no or little knowledge of reproductive processes cannot become effective users if such use does not conform with religious and social beliefs. Therefore, dissemination of information on family planning is recommended.

612.65:613.71
Child development.

25. The role of physical-physiological activity in infant's growth and development. Luz S. Porter. *Silliman Journal,* Fourth Quarter 1971, v.18, no.4, p.343-356. 11 refs.

The study is based on 94 normal full-term infants (4-40 wks old) raised in their natural home environs in Dumaguete City. Results revealed that the growth and development of infants given planned physical-physiological activity in the form of passive cycling exercises, in addition to physical care and emotional support are greater than the growth and development of infants who received only physical care and emotional support.

612.65(=914)
Infant, Newborn. Gestational age.

26. Neuromaturational evaluation in full term and low birth weight Filipino infants. Gregorio S. Pineda and Lorna D. Saure (Faculty of Medicine and Surgery, University of Santo Tomas, Manila). *Philippine Journal of Pediatrics,* Dec. 1971, v.20, no.6, p.237-243. graphs, tables. 22 refs.

A neuromaturational evaluation was performed on 150 full-term and 80 low birth weight infants through 40 wks gestation. It was noted that the Moro, pupillary, supraorbital tap and grasp reflexes were constantly present and were sensitive to gestational age. Significant variations were seen in the neck righting and walking reflexes. At 38-40 wks old, all reflexes were fully present and complete. However, physical parameters were present in only 60% of full-term infants and were poorly correlated with gestational age of the low birthweight infants. It is concluded that the neuromaturational index is better than the physical parameters in assessing the post conceptional age, as well as in separating the small-for-date infants from the true premature. Also, follow-up studies showed the continuous maturation of reflexes with brain stem or spinal center.

DIETETICS

613.2:308
Nutrition surveys.

27. **Barrio Central: A study of some social and cultural factors in malnutrition.** Ofelia Valdecañas. *Philippine Journal of Nutrition,* Oct.-Dec. 1971, v.24, no.4, p.222-237. 29 refs.

The study was conducted in a local barrio in Balanga (Bataan) from Oct. 1968 to April 1969 with consideration in the maternal and infant feeding. Traditional practices relating to eating habits, beliefs, superstitions and food fads were observed to affect one's acceptance or rejection of desirable dietary practices. Other relevant factors were observed in its sociocultural context. Some technical problems in introducing changes were also explored. Recommendations based on the findings in the study area are given.

613.24:616.053.1/.2
Child nutrition.

28. **Malnutrition problems of infants and preschool children in Victoria, Laguna: Protein-calorie, vitamin A, iron and folic acid deficiencies.** Virginia B. Guzman and Victor O. Tantengco (Institute of Public Health, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, Jan.-March 1972, v.8, no.1, p.22-32. graphs, tables. 17 refs.

Anthropometric, dietary, biochemical and clinical evidences of malnutrition obtained from 589 infants and pre-schoolers in Victoria are presented. On the basis of weight data, 2nd and 3rd degree malnutrition are more common in the older age groups (2-6 yrs) applying Gomez' classification. Using the malnutrition index, a lower prevalence of malnutrition ranging from 19 to 27% in all age groups is shown. Biochemical findings in infants showed abnormally low levels on hemoglobin in 51% and hypoproteinemia in 20% of the subjects. Deficient levels of serum foliate were exhibited in 22-37% of older children. Clinical findings showed that signs of protein calorie deficiency are higher in older children. Signs of avitaminosis A revealed highest in 2-6-yr-old children. - Authors' Abstract

OCCUPATIONAL HYGIENE

613.62:616-008 622.87
Occupational diseases - Occurrence.
Mines and mining.

29. **Observations on caloric disorders.** Jaime S. de Leon (Benguet Consolidated, Inc., Baguio City). Manila, 1971. 2ℓ, 17p. tables. 8 refs. Mimeographed. (Paper presented at the 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

A total of 22 caloric disorders, 14 diagnosed as heat exhaustion and 8 as heat cramps, were encountered in 1968-1971 at the Acupan Mine, Benguet Consolidated, Inc. The percentage incidence was small, the highest being 5.6% in 1970 during development of the lower levels, and the lowest, less than 1% in 1971. Cases appeared among acclimatized workers in spite of improved ventilation for the lower levels with effective temp. of 81°-95°F. Age groups affected were 20-50 yrs. Weight gains and losses were observed in all age groups showing that age is apparently not an important factor in heat tolerance.

PUBLIC HEALTH

614.73:543.062(914)
Radioactivity - Measurement.

30. **Environmental radioactivity in the vicinity of the Philippine research reactor (January 1966-June 1971).** Normita T. Bustamante and Cielo T. Roque (Philippine Atomic Research Center, Quezon City). Manila, Philippine Atomic Energy Commission, Oct. 1971. 12p. 3ℓ. graphs, tables. 3 refs. [PAEC (D) 7113]

Data obtained in Jan. 1966-June 1971 showed that the highest radioactivity of rain water recorded in Aug. 1968 was 2.72 x 10^{-8} uCi/ml, and that of air recorded in May 1967 was 2.75 pCi/cc. The average monthly radioactivity obtained during this study was lower compared to that obtained in 1961-1966. This surveillance was made to detect any possible contamination of the environment as a result of the activity of the research reactor as well as global fall out resulting from nuclear weapon tests.

DISEASES, PATHOLOGY

616-005-074:616-053.1/.2
Prothrombin time.

31. **A micro method for prothrombin time determination and its clinical significance in infants and children.** Hilda Feng Kai Lin-Kleiner (Children's Medical Center, Quezon City). *Philippine Journal of Pediatrics,* Dec. 1971, v.20, no.6, p.244-256. graphs, tables. 18 refs.

The micromethod of prothrombin time determination using capillary blood is practical and useful, and has advantages over Quick's macromethod. Studies in 109 normal adult Filipinos showed an average prothrombin time of 14.2 sec. The prothrombin values in normal children, 2 mo.-2 yrs, corresponded closely with the adult level. In cases of neonatal hypoprothrombinemia, hepatitis, biliary obstruction and liver cirrhosis, the prothrombin time was slightly prolonged. Thus, the micromethod is recommended in the study of hemorrhagic conditions in infants and children.

616-005.1
Purpura, Thrombopenic - Drug therapy.

32. **Prognostic correlations in childhood idiopathic thrombocytopenic purpura.** Alfredo C. Valenzuela and Liberation Y. Bongato (UP-PGH Medical Center, Manila). *Philippine Journal of Pediatrics,* Jan.-Feb. 1972, v.21, no.1, p.26-40. chart, graphs, tables. 24 refs.

Forty patients, aged 1-13 yrs, with idiopathic thrombocytopenic purpura were diagnosed in a charity ward. The most common signs encountered were the appearance of bleeding manifestations, such as bruising, purpura and bleeding from mucous membrane, and platelet counts below 25,000/cu.m. Confirmation of the diagnosis was obtained by bone marrow aspiration except in 4 cases. Bone marrow aspirates showed normal to increased megakaryocytes with few or no platelet budding. The treatments given were corticosteroids in the form of prednisone splenectomy, platelet transfusion and immunosuppressive agents. There was no causal relationship between the nature of bleeding and degree of platelet count depression, although chronic bleeders have more marked thrombocytopenia than acute bleeders.

616-006.6:615.779
Neoplasms - Drug therapy.

33. **Chemotherapy of cancer with Mitomycin-C (preliminary report).** Reuben C. Guerrero Emilio Abello, Jr., Deogracias Custodio and Emiliana San Diego. *Journal of the Philippine Medical Association,* Feb. 1972, v.48, no.2, p.58-62. tables. 10 refs.

Observations were made on 45 patients with histologically proven cancers given Mitomycin C. In the 39 cases with evaluable results, there was a 55% response rate among those with gastrointestinal cancers and 36.8% among cases of nongastrointestinal cancers, giving an overall response of 46.1%.

616-006.6:615.779(914)
Neoplasms - Drug therapy.

34. **Bleomycin in the treatment of cancer in the Philippines: Pilot study.** Reuben C. Guerrero, Emilio Abello, Jr., Deogracias Custodio, Emiliana San Diego and Aproniano Tangco. *Journal of the Philippine Medical Association,* Feb. 1972, v.48, no.2, p.49-57. tables. 21 refs.

A total of 25 patients with various types of tumor were observed under Bleomycin therapy. Of the 22 patients who had evaluative results, one had complete remission and 10 had partial remission, or a response rate of 50%. Side effects were noted in some cases but which were fairly tolerable; also the absence of myelosuppression as previously reported was confirmed.

616-006.6:615.78
Neoplasms - Drug therapy.

35. **Oral Pentazocine in patients with cancer pain.** Reuben C. Guerrero and Otoneil Sullesta (UP-PGH Medical Center, Manila). *Journal of the Philippine Medical Association,* Feb. 1972, v.48, no.2, p.75-80. graph. 27 refs.

A total of 104 adults (67-184 lbs) with a variety of malignancies and suffering from cancer pain were given 25 and 50 mg oral Pentazocine. Results showed that both dosages gave good pain relief, although side effects were well tolerated with the 25 mg size tablets than the 50 mg size tablets. It is recommended that the 25 mg size tablets be given for Filipino patients with moderate to severe pain.

616-007:616-053.1
Trisomy.

36. **Trisomy E_1 (17-18); First case report from pediatrics nursery, UST Hospital Clinical and Research Division.** Petrona Domingo-Noblejas (UST Research Center, Manila). *Acta Manilana,* ser. A, Dec. 1971, no.8(13), p.62-72. table, illus. 40 refs.

The first case of E_1 trisomy diagnosed as

Turner's syndrome because of lymphedema, low muchal hair line and deformed ears is reported. Chromosome analysis showed a 46/47 cell line with an extra chromosome which possibly belongs to the E group. Dermatoglyphic examination revealed excess arches on the finger tips, axial triradius t' position on both sides and a log odd score of (-8.75). The most common anomalies associated in the E_1 trisomy and the complete evaluation of the proband are presented.

616-089.4:633.52.151
Sutures. Ramie.

37. Ramie, its potential as surgical suture. Crisostomo A. Arcilla, Alfredo V. Marte and Raul Rodelas. *Philippine Journal of Surgical Specialties*, Jan.-March 1972, v.27, no.1, p.24-28. table. 7 refs.

The study was conducted to determine the tensile strength and tissue reaction of ramie, cotton and silk threads as surgical suture materials. There was no undue cellular tissue reaction in the skin, muscle and stomach wall of the rabbit experimented on, although a significant diminution in the tensile strength of ramie was observed on the 13th post-operative day. Further studies are undertaken to improve the fraying characteristics of ramie threat as surgical suture material.

616-099:616-053.2(914)
Poisoning - Occurrence.
Poison control centers.

38. Acute poisoning in children and the need for the existence of poison control centers in the Philippines. Sotero F. Fabella (Veterans Memorial Hospital, Quezon City). *Philippine Journal of Pediatrics*, Dec. 1971, v.20, no.6, p.257-263. tables. 6 refs.

A total of 27 cases (1-12 yrs old) of poisoning, caused by accidental ingestion of drugs, chemicals and spoiled foods were reviewed. Studies showed that aspiration pneumonia occurred on most cases of kerosene poisoning, while dehydration was observed in food poisoning. In some cases, there was difficulty in identifying the toxic substance ingested. The need for a poison control center program is emphasized.

616.21-089.4
Epistaxis - Blood. Urethane.

39. The use of foam rubber (urethane) for nasal packing. Rafael C. Tionloc (College of Medicine, University of Santo Tomas, Manila). *Santo Tomas Journal of Medicine*, Jan.-Feb. 1972, v.27, no.1, p.45-46.

Foam rubber (urethane) is a new, cheap and easy-to-prepare material for nasal packing to stop nasal bleeding or epistaxis. No local tissue reaction was observed.

The preparation and procedure of packing and its advantages are given.

616.23-097 616.23-085
Asthma - Immunology. Asthma - Therapy.

40. Bronchial asthma - newer developments in immunology and treatment. Allison B. Felarca (UP-PGH Medical Center, Manila). *Filipino Family Physician*, Oct.-Dec. 1971, v.9, no.4, p.1-13. table, illus. 71 refs.

Recent information on the pathophysiology, diagnosis and management of bronchial asthma are discussed viewed from the concept regarding its allergic etiology. Several new aspects particularly in therapy have been supplemented.

616.24-006.6-076
Lung neoplasms - Diagnosis.

41. Lung cancer "Ectopic" or inappropriate gonadotropic hormone production (in vitro demonstration). Reuben C. Guerrero (UP-PGH Medical Center, Manila). *Journal of the Philippine Medical Association*, Feb. 1972, v.48, no.2, p.69-74. graphs, illus. 15 refs.

A method by which chorionic gonadotropin hormone production was demonstrated directly *in vitro* is described. The case was seen in a 45-yr-old male smoker with bilateral gynecomastia and elevated levels of chorionic gonadotropin in the serum and urine.

616.32-07
Esophageal fistula - Diagnosis.

42. Aorta-esophageal fistula: Report of a case. Nestor S. Pareja (UP-PGH Medical Center, Manila). *Philippine Journal of Surgical Specialties*, Oct.-Dec. 1971, v.26, no.4, p.372-375.

The history of the case presented is not suggestive of aorta-esophageal fistula. However, the necropsy findings showed an inflammatory destruction of the aortic wall and pressure necrosis of the tissue between the aorta and esophagus with subsequent proliferation of the connective tissues around the area of the inflammation. A "week-spot" is developed during the pressure and resulted to a fistulous tract, located at about the level of the 3rd and 4th thoracic vertebrae.

616.33-053.1
Pyloric stenosis - Congenital.

43. Congenital membrane-type prepyloric stenosis in a Mongol. Jose S. Ramirez and Gloria Baens-Ramirez (UE-RM Memorial Medical Center, Quezon City and St. Paul Hospital, Manila, respectively). *Philippine Journal of Surgical Specialties,* Oct.-Dec. 1971, v.26, no.4, p.376-380. illus. 20 refs.

A case of congenital membrane-type prepyloric stenosis in newborn with Down's syndrome is presented. The clinical manifestations and treatments are briefly discussed.

616.33-089:616-06
Gastrectomy.

44. Recurrent retrograde jejunogastric intussusception. Wilmer G. Heceta (St. Joseph's Hospital, Manapla, Negros Occidental). *Philippine Journal of Surgical Specialties,* Jan.-March 1972, v.27, no.1, p.38-42. illus. 10 refs.

A case of recurrent retrograde jejunogastric intussusception following subtotal gastric resection with a Polya-Bilroth II anastomosis is presented. The patient had a simple reduction and fixation 4 yrs after a gastric resection. The condition recurred 12 yrs later for which she underwent a resection of the efferent strangulated loop after taking down the gastrointestinal anastomosis. A Hoffmeister-Polya reconstruction was done. Postoperative results were satisfactory.

The etiology, pathophysiology, classification and approaches to therapy are discussed.

616.35-089
Colonic diseases - Surgery.

45. Experiences in the surgical management of obstructive lesions of the colon and rectum. Felix H. Tambuatco and Jose C. Pangan, Jr. (Faculty of Medicine and Surgery, University of Santo Tomas, Manila). *Philippine Journal of Surgical Specialties,* Oct.-Dec. 1971, v.26, no.4, p.347-364. illus. 22 refs.

Seven cases in which obstruction in cancer of the colon and rectum occurred are reported. It was found that proctosigmoidoscopy and barium enema studies are of value in the early diagnosis of this condition. In the removal of the obstructive lesion, primary resection and anastomosis was preferred when the lesion was easily resectable, the patient was an acceptable risk, operating facilities were adequate and the surgeon was experienced in bowel resection. A bypass procedure was indicated in cases of late obstruction with massively dilated small bowel and fixed adherent lesion in borderline surgical risk patients. Colostomy was done in a case where removal of the lesion proved unfavorable due to massive disease in the pelvis.

616.38-006.2
Retroperitoneal neoplasms.

46. Retroperitoneal teratomas. Jose S. Ramirez, Remo Gaudel and Domingo Paulino (UE-RM Memorial Medical Center, Quezon City). *Philippine Journal of Surgical Specialties,* Oct.-Dec. 1971, v.26, no.4, p.365-371. illus. 8 refs.

Two cases of retroperitoneal teratomas are reported, one seen in a 2.5-yr-old girl and the other in a 5-mo.-old girl. The most frequent manifestations observed were abdominal enlargement, anorexia, fever, pallor and constipation. Both cases survived complete excision of the teratoma, although one case developed necrosis of the extra-hepatic biliary tree. Careful and precise dissection should be considered.

616.61:615.76
Nephrotic syndrome - Drug therapy.
Cyclophosphamide - Therapeutic use.

47. Cyclophosphamide in combination with steroids in the management of nephrotic syndrome in Filipino children. A study of 18 cases as defined by clinical, biochemical and histopathological findings. Hilario Esguerra, III (Capitol Medical Center, Quezon City). *Philippine Journal of Pediatrics,* Jan.-Feb. 1972, v.21, no.1, p.3-25. graphs, tables, illus. 33 refs.

The patients, aged 1 yr, 10 mo.-13 yrs. 4 mo., were hospitalized with a diagnosis of nephrotic syndrome. Cyclophosphamide was used in combination with intermittent corticosteroid therapy in the treatment of the patients. Results showed that in the group of patients resistant to steroids, 38.4% had complete remissions, 23.1% had incomplete remission but with significant improvement in clinical and biochemical parameters, 15.4% had doubtful response and 23.1% had no response at all. The most favorable response was seen in the group with late steroid resistance. Also, cases with minimal lesion type of histopathology had complete remission. The results indicated the therapeutic efficacy of Cyclophosphamide in the management of patients developing chronic renal insufficiency in later life.

616.61-003.7:543.53
Urinary calculi. Kidney calculi.

48. Neutron activation analysis of urinary stones. Ireneo C. Lawas, Archilles del Callar and Jesus Amado Feria (Philippine Atomic Research Center, Quezon City). Manila, Philippine Atomic Energy Commission, Dec. 1971. 2ℓ. 18p. graphs, tables. 14 refs. [PAEC (D) 7114]

Analysis of human vesical, urethal and renal stones revealed the presence of Co, Cu, Mn, Zn and Mo. Statistical correlation studies between the elements indicated the importance of further research to establish the interrelations between dietary intake and urinary excretion of trace elements in the human body.

616.61-089:616-073
Kidney - Transplantation.

49. The radiological aspects of the three successful human kidney transplants performed at the UST Hospital. Manuel Mejia, Jr., Alfonso Doria and Ananias Laxamana (UST Hospital, Manila). *Santo Tomas Journal of Medicine*, Jan.-Feb. 1972, v.27, no.1, p.27-36. illus. 9 refs.

Three cases of successful kidney transplants with emphases on the objective radiographic aspects are presented. The first roentgen features included the rejection pneumonia and post-transplant complications. Of the radiographic procedures, chest x-rays, intravenous pyelography and renal angiographic studies were found to be of great help in kidney transplant. Further studies are undertaken to seek more specific information on radiographic data and to improve radiographic quality by use of modern catheter techniques and mastery of the automatic pressure injector in demonstrating the architecture of the organ in the most minute detail.

GYNECOLOGY

618.14:614.26
Hysterectomy.

50. Vaginal hysterectomy by a "Paltera." Wilmer G. Heceta, Wilhelmina Batayola and Gil N. Octaviano (St. Joseph's Hospital, Manapla, Negros Occidental). *Philippine Journal of Surgical Specialties*, Oct.-Dec. 1971, v.26, no.4, p.381-384.

A female patient, aged 44 yrs, was admitted in St. Joseph Hospital with complaints of vaginal bleeding and severe abdominal pain. She was treated as a case of hypovolemic shock secondary to vaginal bleeding resulting from uterine atony. Examinations revealed that a flabby uterus was removed without the cervix and the ovaries. During laparotomy, clotted blood with some oozing from the raw pelvis and dislocated ovaries due to avulsion with the uterus were found. Distortion and swelling of the structures in the pelvis were noted. Postoperative results were encouraging.

618.19:616-006.6:615.74
Breast neoplasms - Drug therapy.

51. Norethisterone acetate (SH 420) in the treatment of pre and post menopausal women with advanced cancer of the breast (preliminary report). Reuben C. Guerrero (UP-PGH Medical Center, Manila). *Journal of the Philippine Medical Association*, Feb. 1972, v.48, no.2, p.63-68. tables. 13 refs.

A total of 28 female patients, 27-48 yrs old, with inoperable and/or advanced breast cancers were given Norethisterone acetate (SH 420). Results showed an overall response rate of 50%. 8 of the 11 premenopausal and 6 of the 17 post menopausal patients showed good response. Side effects noted were well tolerated without necessitating interruption or modification of doses.

Further studies are being undertaken to include correlation of urinary gonadotropin levels and response to SH 420 therapy.

VETERINARY MEDICINE

619:616.986.7:636.1(914) 636.1.089(914)
Horses - Diseases and pests.
Leptospirosis - Occurrence.

52. Studies on leptospirosis in animals and man in the Philippines. VI. A serological survey on the incidence of leptospirosis among horses. Teodulo M. Topacio, Myles J. Leeds, Estela Famatiga and Milagros Suva. *Philippine Journal of Veterinary Medicine*, Dec. 1971, v.10, no.2, p.139-156. tables. 40 refs.

A total of 272 horses of predominantly Thoroughbred bloodlines were examined for leptospiral antibodies by the agglutination-lysis test. 12.9% of the apparently healthy horses were found positive for *Leptospira pyrogenes* and *L. pomona*. Horses with ocular lesions were found positive for *L. pyrogenes*, *L. canicola* and *L. autumnalis*. Among repeat breeders, 18.4% were positive for leptospiral antibodies. This study indicates that leptospirosis is present among horses in the Philippines.

619:616.993:615.778 619:616.993-085
Poultry - Diseases and pests - Therapeutics. Coccidiostats.

53. **Evaluation of the coccidiostatic effect of Cycostat, Amprol Plus, NF-180 and Zoamix on broiler chicks raised on deep litter.** Mauro F. Manuel and Alfredo Q. Lacuata (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* Dec. 1971, v.10, no.2, p.81-100. tables. 43 refs.

Four coccidiostats were experimented on 700 one-day-old broiler chicks artificially infected with *Eimeria tenella, E. acervulina, E. necatrix* and *E. praecox.* Of the 4 drugs, Cycostat proved to be the most potent coccidiostat against *Eimeria* infection. The chicks given Cycostat gained more weight, had better feed conversion efficiency and were better protected against coccidiosis. Intestinal lesions due to coccidia were pronounced in chickens given Amprol Plus, Zoamix and NF-180.

619:616.993:636.4 636.4.089
Swine - Diseases and pests - Diagnosis.

54. **Serologic examination of pigs slaughtered in the Manila Abattoir for trichinosis using bentonite flocculation test.** Primo V. Arambulo, III, Ray M. Dolor and Mario S. Tongson (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* Dec. 1971, v.10, no.2, p.174-180. 21 refs.

Analysis of serum from 103 native and foreign-mixed breeds of pigs was done by the bentonite flocculation test. Results proved negative for *Trichinella spiralis* (Owen, 1835) Raillet, 1895.

619:616.993:636.5 636.5.089
Poultry - Diseases and pests.
Leucocytozoon caulleryi.

55. **Pathology of chickens naturally infected with Leucocytozoon caulleryi.** Meliton N. Novilla, Joseph S. Masangkay and Benedicto A. Santiago (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* Dec. 1971, v.10, no.2, p.130-138. plates. 8 refs.

Gross and histopathologic observations of 35 chickens of different breeds naturally infected with *Leucocytozoon caulleryi* are discussed. The most significant lesions observed were hemorrhages which varied from petechiae to suffusions in the visceral organs and other tissues. Microscopically, the hemorrhages were associated with rupture of megaloschizonts. Anemia manifested by pallor of the combs and wattles was referrable to simple blood loss and destruction of red blood cells. Erythrocyte destruction was evidenced by severe hemosiderosis in the spleen, liver and bursa of Fabricius. It is believed that birds suffering from anemia due to RBC destruction but not from generalized body hemorrhages may live longer and may recover from the effects of the erythrocytic stages provided re-infection does not occur. However, birds may die from effects of intercurrent infections, such as fowl pox, leukosis, Tetrameres infection and CRD as observed in this study.

Dogs - Diseases and pests - Therapeutics.
Giardiasis.

56. **Case report - Giardia canis Hegner 1922, a hitherto unreported protozoan parasite of dogs in the Philippines.** Mario S. Tongson, Alfredo Lacuata and Julian E. Mesina, Jr. *Philippine Journal of Veterinary Medicine,* Dec. 1971, v.10, no.2, p.208-210. plate. 4 refs.

Giardia canis infection was established in six 7-wk-old Boxer puppies. The diarrhea was effectively controlled with Atabrine. This report confirms previous investigations that *G. canis* can be pathogenic especially in puppies.

619:616.993:636.7(914) 636.7.089(914)
Dogs - Diseases and pests - Therapeutics.
Hepatozoon canis.

57. **A report on the presence of Hepatozoon canis in the Philippines.** Enrique T. Carlos, Lino M. Atienza and Corazon C. Cabiles. *Philippine Journal of Veterinary Medicine,* Dec. 1971, v.10, no.2, p.181-189. plate, tables. 9 refs.

The occurrence and identification of *Hepatozoon canis* in eight 2-mo. to 7-yr-old dogs are reported. Both symptomatic and asymptomatic cases were encountered, suggesting that the parasite may be pathogenic under certain conditions. Only one dog died apparently of dirofilariasis. Therapeutic doses of Chloramphenicol, Terramycin, Aureomycin or Ampicillin supplemented with iron, B-complex and other multivitamins effected varying degrees of response, while one case recovered completely.

619:616.995:636.4(914) 636.4.089(914)
Swine - Diseases and pests - Diagnosis.
Worms, Intestinal and parasitic.

58. **Prevalent species of swine stomach worms in the Philippines.** Mario S. Tongson, Alex V.

Castillo, Primo V. Arambulo and Rustica Sarmiento (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine*, Dec. 1971, v.10, no.2, p.101-108. plates, tables. 11 refs.

Of the 1011 pig stomachs examined, 581 were found positive for stomach worms identified as: *Ascarops strongylina* (78.48%), *Hyostrongylus rubidus* (40.79%), *Physocephalus sexalatus* (5.16%) and *Gnathostoma doloresi* (3.96%). Pure infection with *A. strongylina* was the most common and with *G. doloresi*, the least; common mixed infections were noted with *A. strongylina* and *H. rubidus*. Pigs from Isabela were found to have the highest prevalence of stomach worms, while those from Pangasinan, the lowest.

619:636.12:591.11(043)
Blood - Analysis and chemistry - Horses.

59. A preliminary study on the RBC, PCV, and Hb values and the erythrocytic indices of training and non-training Philippine racehorses. Alexander B. King. Quezon City, College of Veterinary Medicine, University of the Philippines, Nov. 1971, 4ℓ. 21p. 3ℓ. tables, illus. 16 refs. (Thesis. Doctor of Veterinary Medicine)

Hematological studies were conducted on 82 apparently normal non-training and training racehorses. Results showed that the training horses had higher RBC, PCV, Hb and MCV values than the non-training horses, while the MCHC and MCH values were almost identical in both racehorses. Compared with foreign data, Philippine racehorses have lower RBC and PCV values, but higher Hb, MCV, MCHC and MCH.

619:636.5.089
Poultry - Diseases and pests.
Eimeria mivati.

60. Pathology of experimental Eimeria mivati infection in young chickens. Calcita S. Medina. Quezon City, College of Veterinary Medicine, University of the Philippines, Nov. 1971. 4ℓ. 31p. illus. 10 refs. (Thesis. Doctor of Veterinary Medicine)

Forty-five one-day-old White Leghorn chicks of both sexes were experimentally infected with a local strain of *Eimeria mivati*. Within the first 6 days the birds developed listlessness, depression, poor appetite and ruffled feathers. At necropsy, hyperemia and mucoid inflammation characteristic white spots in the duodenum and upper small intestine were observed. Microscopically, the significant findings were infiltration of the eosinophils, neutrophils, histiocytes and lymphocytic cells in areas near parasitized cells; proliferation of lymphoid elements in the small intestine and rectum and alterations in the size and shape of parasitized epithelial cells.

ENGINEERING

622.235
Mines and mining - Blasting.

61. Aluminized blasting: An appraisal of its safety aspects and performance at the underground mines. P. A. Arquelada. *Philippine Mining Record*, Dec. 1971, v.6, no.1, p.37-42. tables, illus.

EXXO 90-30 (aluminum alloy granules with 2% Mg), which increases the energy produced by the conventional ammonium nitrate-fuel oil gave better rock fragmentation, expanded drilling patterns, reduced explosive cost and eliminated the bootlegs. Remedial measures to reduce the amount of noxious gases to a safe and allowable concentration are discussed.

622.24(914)
Drills, Oil well.

62. A review of oil exploratory drilling in the Philippines (1896-1971). Benjamin A. Daleon. *Mineral Engineering Magazine*, Nov.-Dec. 1971, v.23, no.2, p.20-35. graphs, tables, illus. 7 refs. (Paper presented at the 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

Of the 260 exploratory wells drilled, 220 failed to go below 5000 ft in depth. Only 9 wells went below 10,000 ft total depth. It was noted that not enough drilling for oil is being done in the Philippines in spite of enormous growth in oil product consumption. Due to the difficulty in securing data, some are necessarily incomplete and in some instances could stand further revision.

622.272
Mines and mining.

63. Block caving practices at Atlas Consolidated Mining and Development Corporation. T. L. Licuanan and C. P. Bumanglag (Atlas Consolidated Mining and Development Corp., Toledo City). Manila, 1971. 13p. 18ℓ. illus. Mimeographed. (Paper presented at the 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

The methods and procedures of gravity block caving at the Atlas underground mine are described. The choice of the system depends largely on the competency of the rock, production requirement, and labor, equipment and maintenance costs.

622.341:622.78
Iron ore reduction.

64. A study of the reduction behavior of roasted magnetite concentrate in hydrogen-water vapor-nitrogen mixture. Nestor B. Salanio (College of Engineering, University of the Philippines, Quezon City). Manila, 1971. 9p. 5ℓ. graphs. 5 refs. Mimeographed. (Paper presented at the 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

Roasted magnetite pellets with 2% Wyoming bentonite as binder were indurated at 1250°C for one hr and reduced in hydrogen-water vapor-nitrogen mixture at 600°-900°C. Results showed that the reduction of roasted magnetite pellets which follows a topochemical path occurred simultaneously at definite interfaces, moving parallel to the original surface of the specimen. Reduction occurred in 2 stages and was found dependent on the H_2 partial pressure. The rate of reduction was directly proportional to the H_2 partial pressure in the range of 0.1-0.8 atm. Unfired pellets reduced faster than fired pellets.

622.341:622.78
Iron ore reduction. Laterite.

65. The selective reduction of Philippine laterite ores. Romarico Jose Platon (College of Engineering, University of the Philippines, Quezon City). Manila, 1971. 13p. graphs, table. 8 refs. Mimeographed. (Paper presented at the 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

Nickel-bearing limonitic laterite samples from Pujada and Palawan were hand-rolled into spherical pellets and subjected to different hydrogen-water and vapor-nitrogen gas mixtures at 500°-950°C and reducing gas ratios of 0.2-5. Results showed that the optimum conditions for the selective reduction of the laterites were found to be at 700°C with a reducing gas ratio of 1.0 and a reaction time of 20 min.

622.341:622.78
Iron ore reduction. Magnetite.

66. Characterization of the reducibility of some Philippine iron ores. Agnes P. Marquez (College of Engineering, University of the Philippines, Quezon City). Manila, 1971. 12p. 14ℓ. graphs, diagr. 7 refs. Mimeographed. (Paper presented at the 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

The rates of reduction of Atlas and Philex fine magnetite concentrates were studied using pure H_2 at 600°-900°C, at a partial pressure of H_2 of approximately 0.35 atm. It was observed that the reaction interface did not appear distinct due to the high porosity of the materials. The reduction rate increased with increase in temperature. Also, pre-reduction roasting of Atlas magnetite increased the reduction rate under the test conditions. The activation energies obtained were 4770 cal/mole for Philex roasted magnetite and 15,700 cal/mole for Atlas magnetite.

622.341:622.788
Iron ore treatment - Pelletizing.

67. Local pellet binders for Philippine iron concentrates. Dionisio R. Riveral (College of Engineering, University of the Philippines, Quezon City). Manila, 1971. 17p. graphs, tables, diagr. 10 refs. Mimeographed. (Paper presented at the 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

Clays from Batangas and Laguna were experimented on as pellet binders for Philippine iron concentrates and compared with Wyoming bentonite. Compressive strength determinations showed that the pellets produced using the Batangas clay exhibited better properties than those produced using the Laguna clay. Surface cracks were observed on pellets fired at 2350°F bonded with the Laguna clay, but none on those bonded with Batangas clay and Wyoming bentonite.

622.342:622.765
Gold mines and mining.

68. Milling practice at Thanksgiving Mine of Benguet Exploration, Inc. Honesto Ll. Alejandre. Manila, 1971. 22p. tables, diagr. Mimeographed. (Paper presented at the 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

The Thanksgiving Mine of Benguet Exploration, Inc. is reputed to be the highest grade Au mine, and the only one producing Zn and Cd in the Philippines. The different stages of milling including the 3 individual extractive milling processes are briefly discussed. Presently, the most suitable method of ore dressing is selective flotation of Cu then of Zn and cyanidation. However, with this method, only 60% of the Au in the Zn concentrate is returnable which would mean a cut of 25-30% in the total Au production.

622.343:622.272:658.5
Copper mines and mining.

69. **Standard stope control procedure in Lepanto.** Tomas A. Cayabyab (Lepanto Consolidated Mining Co., Lepanto, Benguet, Mountain Province). Manila, 1971. 15p. illus. Mimeographed. (Paper presented at the 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

The standard stope control procedures were introduced to maximize ore recovery with minimum dilution. The control procedures effected better agreement between mine and millheads than in previous operations. Also, grades are now more predictable; low grade sources are more easily isolated and upgrading of millheads is easily done.

622.343:622.775
Copper ore treatment - Leaching.

70. **Separation leaching of an arsenical copper concentrate.** Ruben M. Ducusin (College of Engineering, University of the Philippines, Quezon City). Manila, 1971. 15p. graphs. 19 refs. Mimeographed. (Paper presented at the 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

The effects of temp., O_2 overpressure, stirring and pyrite addition on the rate of dissolution of Lepanto arsenical Cu concentrate (enargite) in acid oxidative pressure leaching conditions were evaluated. Results indicated that the rate of leaching increases with temp. and is proportional to the half power of O_2 overpressure. Leaching reaction was diffusion-controlled at 750 rpm stirring speed. No increase in the rate of leaching reaction was observed when pyrite was added up to 1/3 the weight of Cu concentrate. 96.4% Cu recovery was obtained after 4 hrs running at 175°C, 100 psi of O_2 and 750 rpm stirring speed.

622.343:622.775
Copper ore treatment - Leaching.

71. **Studies in the dump leaching of the Balabag ore.** T. P. Cruz and R. Agleam, Jr. (College of Engineering, University of the Philippines, Quezon City). Manila, 1971. 14p. graphs, tables, illus. 3 refs. Mimeographed. (Paper presented at the 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

Results of the study showed that Cu extraction is increased by an increase in surface area of the ore particles, partial pressure of O_2 used for aeration, acidity of the pre-aerating solution and reaction temp. Leaching of the Cu ore was improved by pre-roasting and treatment with ferric leach solution. It was noted that an optimum concentration of $FeCl_3$ can effect the best Cu extraction.

622.348:681.142
Computers - Mining engineering applications. Nickel deposits.

72. **Computerization of the initial development of nickeliferous laterite deposits.** Marciano S. Gonzales and Leonardo P. Sangalang, Jr. (A. Soriano y Cia., Makati, Rizal). Manila, 1971. 1*ℓ*. 11p. 7*ℓ*. table, illus. Mimeographed. (Paper presented at the 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

The computer programs developed designed to suit the exploration program for the development of the nickeliferous deposits of the A. Soriano y Cia. in Western Palawan and Pujada Peninsula (Davao Oriental) are discussed. The basic objectives of the programs are: 1) to organize in a magnetic data tape file the analysis results of samples extracted from exploratory pits or auger holes; 2) to estimate the tonnages and grades of ore reserves using the analysis data; and 3) to aid in determining the shape or distribution of the orebody. However, the programs have potential uses for determining the effect of various orebody cut-offs on the tonnage/grade estimation and orebody distribution or shape, estimating the tonnages and grades for each quarter of a claim and determining the effect of various pit spacings on the tonnage/grade estimation.

622.61
Mines and mining - Raise driving.

73. **Bird cage raising in Acupan Mine, Benguet Consolidated, Inc.** D. R. Belmonte. Manila,

1971. 19p. illus. Mimeographed. (Paper presented at the 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

The various aspects of the operation of a Bird Cage System, including equipment, mechanics of operation, training of the crew, safety precautions and comparative cost, as gleaned from experiences in Acupan Mine are discussed. The system proved to be the best means of opening up the lower levels in the mines where heat drastically reduced the efficiency of the crew.

622.7:621-52
Mines and mining - Electric equipment.

74. **Philex Bañguet concentrator instrumentation and control.** Ricardo M. Famorca, Eduardo E. David and Francisco L. Altea. Manila, 1971. 14p. diagr., illus. Mimeographed. (Paper presented at the 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

A semi-automatic control system is provided for the crushing, pH and grinding circuits of the Philex Mining Corporation's new Bañguet concentrator, and a simple bin control system is also included. There is a central control panel overlooking the crushers, and the pH and grinding controls are located in a central control room overlooking the ball mills and flotation sections. The plant instrumentation includes level probes and power sensing units at the secondary/tertiary crushing plant; sump level control, cyclone feed density and feed rate controls at the grinding section; and electro-pneumatic control and pH monitors at the pH control section. All controls have process recorders in each system to serve as guide for maximizing operational results and for research purposes.

622.7:628.515
Mines and mining - Waste disposal.

75. **Preliminary feasibility study on the proposed design of tailings pipeline disposal system (common sewer) of various companies of Baguio Mining District to avoid pollution of the Agno and Bued River Systems.** Jose M. Bacani (National Water & Air Pollution Control Commission, Manila). *Philippine Mining Record,* Nov. 1971, v.5, no.12, p.11-12, 14, 16, 18. tables. 4 refs.

Based on the comparative analysis of the hydraulic characteristics of the Baguio Mine tailings with that of Atlas Mine (Toledo City), a gravity flow disposal system with flush stations located at strategic places is recommended. The system will handle approximately 30,000 tons of tailings/day from 6 different concentrators and/or milling plants in the Baguio Mining District.

622.788:622.341
Iron ore treatment - Pelletizing.

76. **Breakthrough in iron ore pelletizing at the Pellet Corporation of the Philippines.** Quintin S. Prieto and Nestor O. Yu (Pellet Corp. of the Philippines, Larap, Jose Panganiban, Camarines Norte). *Philippine Mining Record,* Jan. 1972, v.6, no.2, p.14-16, 18. tables, illus.

Construction of the Pelletizing Plant of the Pellet Corp. of the Philippines began in Dec. 1964 and was completed after a yr with numerous problems both technical and non-technical in the initial operation of the plant. 3 furnaces were blown-in one after the other. Quality of the product pellets was below par and the designed capacity of the plant was not attained. However, the operation improved considerably after various modifications and 84% of the designed capacity was obtained. Tumble index on the minus 28 mesh improved from 12.08% to 3.13% and the pellet crushing strength was 256 kg.

Further studies are undertaken in improving operations to increase production and improve quality at low cost.

623.446:608.3
Truncheons. Patents and inventions.

77. **Electronic truncheon - A new device for crowd control.** *Philippine Inventors Bulletin,* Nov.-Dec. 1971, v.2, no.3, p.17. illus.

Truncheon is a new patented electronic shocking device invented by Lorenzo Estrada, designed to disperse crowd or a riot effectively. It is made of kiln dried wood, the forward portion of which has an oscillator unit and transistorized electrical circuits powered by 4 penlight batteries giving an output of 180 volts through metallic lines running along the length of the truncheon. It is the shock from this voltage that repels anybody alive who gets in contact with it.

The operation of this device is briefly discussed.

628.515
Tailings.

78. **Mill tailings disposal of Benguet Consolidated, Inc.** Larry P. Martin (Benguet Consolidated, Inc., Baguio City). *Philippine Mining Record,* Nov. 1971, v.5, no.12, p.20-27. map,

tables, illus.

The study undertaken by the National Water and Air Pollution Control Commission (Manila) showed the feasibility of constructing a communal 24-inch diameter tailings pipeline from Camp 4 on the Kennon road near Baguio, and pipe tailings out to the sea near Damortis (La Union). It is recommended that during the interim period of filling up of tailings disposal areas and the construction of this communal tailings pipeline, controlled flushing of mill tailings from the tailings pond be undertaken during periods of heavy rainfall.

AGRICULTURE AND FORESTRY

632.5:631.552:631.41
Weeds - Yield.

79. Responses of some lowland weed species to salinity. I. Scirpus maritimus L. to sodium chloride. B. T. Mercado, C. Malabayabas and S. Gumasing (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist,* Oct.-Nov. 1971, v.55, nos.5-6, p.253-259. tables, illus. 10 refs.

The growth and tuber yield of *Scirpus maritimus* L. were determined at different levels of NaCl. Results indicated that this species can compete very effectively with rice plants under saline field condition. Analysis of the tissue showed that *S. maritimus* L. possesses some regulatory mechanisms which maintain the accumulation of Na and Cl ions in the tissue at a certain minimum level.

633.15:632.3(043)
Corn - Diseases and pests.

80. Mechanical inoculation of corn plant (Zea mays Linn.) with virus harbored in different mosaicked plants. Thenawatt Kamhangridthirong. Victoneta Park, Malabon, Rizal, Araneta University Foundation, Nov. 1971. 10*ℓ*. 62p. tables, illus. 15 refs. (Thesis. M. S. in Agriculture, Major in Plant Pathology)

Mechanical transmission experiments of the virus from 5 species of mosaicked grass plants and 7 species of non-grass mosaicked plants caused mosaic symptoms of varying degrees of severity in corn. In general, the incubation period of the disease was 7-28 days. It is advised that mosaicked grass weeds and other diseased plants in corn fields be controlled since aphid transmission of the disease is highly probable.

633.18:631.3:608.3
Seeding machinery.
Patents and inventions.

81. Row seeder replaces manual transplanting. *Philippine Inventors Bulletin,* Nov.-Dec. 1971, v.2, no.3, p.14. illus.

The row seeder was invented by Nestor Navasero and developed at the International Rice Research Institute, Los Baños,(Laguna). It is operated by only one person and can seed 25 times faster than the manual transplanting. The machine is available in 2 models - the 6-row seeder with a seeding capacity of 7 man-hrs/ha. and the 8-row seeder with a seeding capacity of 5 man-hrs/ha.

The main parts of the machine are briefly described.

633.18:631.362
Rice - Drying.

82. Natural steam for palay drying. *Animal Husbandry and Agricultural Journal,* Feb. 1972, v.7, no.2, p.12.

Palay-drying tests on the use of heat from natural steam were conducted at the Commission on Volcanology geothermal plant in Tiwi (Albay). Results showed that palay can be dried 4 times faster inside a steam-jacketed revolving cylinder than the usual drying under the sun. Also, the process can be used for producing salt of fine quality.

633.18:631.363
Rice - Storage. Silos.

83. Silos will reduce rise losses. *Animal Husbandry and Agricultural Journal,* Jan. 1972, v.7, no.1, p.35.

The Rice and Corn Administration have set up a modern silo system type of processor with drying, milling and storing methods designed to minimize rice losses as is observed with the crude method of sun-drying.

633.18:631.52
Rice - Varieties.

84. IRRI working on 'tough' new rice varieties. *Animal Husbandry and Agricultural Journal,* Feb. 1972, v.7, no.2, p.11.

IR-20, a new rice variety, is being developed by the researchers of the International Rice Research Institute, Los Baños (Laguna). The new variety is dark green, resistant to local diseases and can survive floods.

633.18:631.52
Rice - Varieties.

85. **IR24 - a low amylose variety.** *IRRI Reporter*, 1971, no.2, [p.1-2]. table, illus.

IR24 is the first variety named by the International Rice Research Institute, Los Baños (Laguna) that has a low amylose content in the grain. It was previously known as the experimental line IR661-1-140-3 which resulted from a cross between IR8 and experimental line IR127-2-2. The variety is fairly resistant to insects, diseases and lodging, and has better yield than other IRRI varieties.

633.18:631.52:632.7
Rice - Disease and pest resistant varieties.

86. **Resistance of rice varieties to striped rice borers.** M. D. Pathak, Fausto Andres, Natividad Galacgac and Romeo Raros. Los Baños, Laguna, International Rice Research Institute, 1971. 69p. graphs, tables, illus. 39 refs.

A total of 10,000 varieties and lines from different countries were screened for resistance to stem borers *(Chilo suppressalis* Walker) at the International Rice Research Institute. 1351 varieties showed some resistance to striped rice borers. The varieties reacting as resistant generally had about 10-20 times fewer dead hearts and white heads than the susceptible varieties. The susceptibility of most varieties appeared positively correlated with the preference of moths for oviposition. Varieties with high SiO_2 content in the stems were found less susceptible to borer infestations than varieties with low SiO_2 content. The most resistant varieties were found to be TKM_6, Taichung 16, Chianan 2, Su-Yai 20, Szu-Miao, Yabami Montakhab 55 and DV139. The most susceptible varieties were Ptb 10 Reforo, Bluebonnet, Milfor 6(2) and Sapan Kwai. Studies under way show that the chemical constituents of the plants also greatly influence both the nonpreference and antibiosis aspects of borer resistance.

633.18:631.543:631.552(043)
Rice - Cultivation. Rice - Yield.

87. **The effect of direct and transplanted culture on the growth and yield of three high yielding lowland rice varieties.** Benito A. Dacayo. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1971. 4ℓ. iv, 5ℓ. 68p. tables, diagr., illus. 19 refs. (Thesis. M. S. in Agriculture, Major in Agronomy)

Results of experiments with IR5, IR20 and IR22 showed that transplanted as well as directly seeded plants performed equally well as shown by the insignificant differences in plant height, number of tillers/hill and number of filled grains/panicle, weight of grains/hill, yield and percentage of dead heart, white head and lodging. At full heading, plant height and number of tillers at 50 days old of transplanted plants were significantly higher than the directly seeded plants. In terms of yield, IR5 significantly outyielded IR20 planted by direct seeding and IR22 grown by transplanting. It was found that IR5 and IR20 were more adapted to transplanting culture and IR22 to direct seeding.

633.18:631.552
Rice - Yield.

88. **The effect of over-vegetation on rice production.** Teofilo S. Eugenio (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1970(1972), v.35, nos.3-4, p.127-143. graphs, tables. 20 refs.

Experiments conducted on 20-day-old Peta and Tainan 3 seedlings showed that N fertilization promoted a high degree of mutual shading causing poor light utilization and subsequent lodging. Thus, grain yield was considerably reduced. Pruning the leaves of the rice plants severely before and after panicle initiation reduced the number of normal panicles/plant and the number of spikelets/panicle.

633.18:631.552:632.5
Rice - Yield. Plant competition.

89. **The effect on yield of the competition of rice with Echinochloa crusgalli (L.) Beauv. and Monochoria vaginalis (Burm. F.) Presl.** Rosario T. Lubigan and M. R. Vega (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist,* Oct.-Nov. 1971, v.55, nos.5-6, p.210-215. graph, table, illus. 2 refs.

Observations made on a plot of C4-63 variety showed that *Echinochloa crusgalli* significantly reduced rice yield when present during the first 40 days of crop growth and increased the damage as the weed population became more dense. *Monochoria vaginalis* reduced yield only at higher densities regardless of duration, indicating that *E. crusgalli* is more competitive than *M. vaginalis.* For both species, the plants that may come up 40 days after transplanting do not affect the yield of lowland rice.

633.18:632.3
Rice tungro virus.

90. Tungro disease. *Animal Husbandry and Agricultural Journal,* Feb. 1972, v.7, no.2, p.6.

Tungro is caused by a virus which is transmitted from infected to healthy plants by green leafhoppers. Infected rice plants turn light yellow to orange yellow. Some of the high yielding varieties which are resistant to tungro are: IR20, C4-63, C4-137 and BPI-76(NS) while wagwag are susceptible to this disease. The recommended control measures in reducing tungro disease are planting of resistant varieties and protecting rice plants from green leafhoppers in the seedbed for at least 60 days after transplanting with insecticides.

633.18:632.3
Rice tungro virus.

91. The tungro menace in rice production. Ricardo P. Venturina (National Science Development Board, Manila). *Animal Husbandry and Agricultural Journal,* Oct. 1971, v.6, no.10, p.10-12. table, illus.

Four virus diseases of rice, such as orange leaf, grassy stunt, yellow dwarf and tungro, were identified in the study conducted at the International Rice Research Institute, Los Baños (Laguna). Tungro was found to be the most destructive and widely spread disease. Tungro infected plants were stunted with yellow leaves and slight reduction in number of tillers; root development was poor; panicles were small, sterile and not completely exerted; and the grains were covered with dark brown blotches. The tungro virus is transmitted through sucking by both numphs and adult green leafhoppers known as *Nephotettix impicticeps.*

The measures in controlling tungro are given.

633.18:632.4:632.952
Fungicides. Rice blast disease.

92. Hinosan against rice blast - protective and eradicative. *Philippine Farmers Journal,* Fourth Quarter 1971, v.13, no.4, p.15.

Under Philippine conditions, 2-4 applications of Hinosan during the growing season and 2 applications at heading and flowering stages can sufficiently protect the plant from rice blast and give an excellent, qualitative and quantitative harvest. The fungicide is also effective against sheath blight, ear blight and stem rot, and against leafhoppers, planthoppers and rice caterpillars. Hinosan can be mixed with insecticides like Polidol M50, Cusathion A40%, Metacide 50 and Etrofolan.

633.526.1:632.75:632.11
Manila hemp - Diseases and pests.
Plant lice.

93. The seasonal fluctuation of Aphid population in Eastern Visayas (Leyte) as affected by certain environmental conditions. Leonardo L. Bañados (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1970(1972), v.35, nos.3-4, p.171-176. tables. 3 refs.

A 3-yr study of a 29.4 ha. abaca plantation revealed the presence of *Aphis gossypii, A. glycines* and *Toxoptera citricida.* It was observed that temp., R. H. and rainfall are important factors that directly affect the aphid population. The highest number of aphids was noted after the rainy season and during the early stages of growth of abaca.

633.71:631.552
Tobacco - Yield.

94. Effect of depths of tillage and fertilization on the yield and other agronomic characters of virginia, wrapper, cigar-filler and white burley tobacco. Serapion J. Bayubay and Jesus M. Ylagan (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1970(1972), v.35, nos.3-4, p.217-233. plates, tables. 6 refs.

Results of a 3-yr experiment showed that the depths of plowing and fertilizer placement significantly influenced the yield of Simmaba and Simax, but did not influence significantly the yield of Golden Harvest and Ky 16. Simax and Simmaba had the highest yield at maximum tillage depth of 14 in. and fertilizer placement depth of 12 in. Plant height varied with the depths of tillage and fertilizer placement. However, no significant differences were noted in the mean number of leaves, length and width of leaves, length of internodes and stem circumference of plants between the different depths of tillage and fertilization.

633.71:632.358(043)
Tobacco mosaic virus.

95. Further studies on the transmission of plant harbored viruses to tobacco (Nicotiana tabacum Linn.). Prasit Devahastin Na Ayudhya. Victoneta Park, Malabon, Rizal, Araneta University Foundation, Feb. 1972. 9*ℓ*. 73p. tables, illus. 28 refs. (Thesis. M. S. in Agriculture, Major in Plant Pathology)

Of the 22 species of grass and non-grass mosaicked plants studied, the following were found to harbor the virus infecting tobacco: *Eriochloa procera* (Retz.) Hubb., *Digitaria corymbosa* (Roxb.) Merr., *Rottboellia exaltata* L. f., *Echinochloa colonum* Berg., *Brachiaria reptans* (L.) Gard. and Hubb., *Saccharum spontaneum* (L.) subsp. *indicum* Hock., *Zea mays* Linn. and *Crotalaria saltiana* Andr. The virus produced the characteristic leaf mottling symptoms, but which were hardly distinguishable from the mosaic symptoms of true tobacco mosaic. The average incubation period of the disease in tobacco was 14-22 days.

633.73/.74:631.5
Coffee. Cacao.

96. Coffee and cacao. Petronilo R. Ramos (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1970(1972), v.35, nos.3-4, p.145-169. tables. 6 refs.

Measures in the improvement of coffee and cacao farms, such as fertilization, planting of improved varieties and/or strains, control of pests and diseases, regular pruning and/or rejuvenation, are discussed in detail. 4 species of *Coffea* are commercially cultivated, namely: *C. arabica* Linn., *C. canophora* Pierre ex Froehner *(C. robusta* Linden), *C. liberica* Bull ex Hiern and *C. excelsa* Chevalier. The Arabica varieties are profitably grown in the Mt. Province, Davao, Negros Occidental, Bukidnon, Cotabato and Quezon. The Robusta varieties require warmer temp., with well-distributed rainfall, and the *Excelsa* species can grow in warm regions at sea level up to 2000 ft elevation. The distinct varieties of cacao discussed are the Criollo and Forastero.

634.0.2
Tree seedlings.

97. Calculation on forest tree seed. Alfredo Agpaca and Gottard Seeber. *Reforestation Monthly,* Nov.-Dec. 1971, v.10, nos.23-24, p.4-5, 11-12. graph, tables.

The following criteria should be considered in the proper calculations of the number of plantable tree seedlings under favorable nursery conditions in undertaking reforestation programs: 1) size and weight of seeds of the different forest tree species; 2) quality and special germination characteristics of the seedlot; and 3) mortality of seedlings during their growth period in the nursery.

Some calculations are given to illustrate the use of such data as purity percentage, germinative capacity, germination energy and tree percentage for practical purposes.

634.0.4:632.7
Wood - Pests.

98. How to prevent wood pests. *Philippine Lumberman,* Jan. 1972, v.18, no.1, p.67.

Pinhole borers and powder-post bettles are wood-destroying insect pests that cause great damage on logs and wooden products. Some of the recommendations to protect logs from the attack of pinhole borers are: 1) by removing immediately logs from the woods and storing them in a log pond free from marine borers and other fouling organisms; 2) by storing logs on dry land, removing the bark and spraying them with suitable insecticides; and 3) by converting log into lumber and veneer and drying them adequately. The measures in preventing powder-post beetles on finished products are also given.

634.0.5
Forest mensuration - Methodology.

99. A method of determining timber stand in logging set-ups. F. O. Chinte. *Philippine Lumberman,* Feb. 1972, v.18, no.2, p.23, 25, 31-32. tables, illus. 3 refs.

The proposed method called point cruising can be used for the determination of average stand structure of a wider area than the usual method of cruising. The method is cheap and efficient in determining the average volume/ha. of mature, over-mature and uneven-aged tropical forest. It has been found that a crew of 5-6 trained timber cruiser, completed cruising 157.67-205.33 ha./8-hr working day. Variable timber estimates can be used in mature and less disturbed Dipterocarp forest with fairly satisfactory results.

634.0.5:582.825:631.55 634.0.2:582.825
Forest increment. Forests and forestry - Stand composition.

100. Structure and yield of uneven-aged Picop dipterocarp forest. F. O. Chinte. *Philippine Lumberman,* Jan. 1972, v.18, no.1, p.48, 50, 52-53. graphs, tables, illus.

The study was conducted to determine the structure of the virgin and residual stands of the Paper Industries Corp. of the Philippines (PICOP) and the expected yield of the residual forests of different structures. Results showed that the average distribution of tree sizes in the residual stands corresponded very closely to the virgin stand, averaging from 50 to 53% small timber, 32-33% medium timber and 15-17% large timber. PICOP forest was found to have a good distribution of tree sizes. The average periodic annual increment was 2.5 cm/ha. for Dipterocarp species and 1.21 cm/ha. for other species. After 35-yr period, PICOP forest are expected to have from 177.65 to 265.98 cm/ha., consisting of 137.53 cm of Dipterocarp species and 79.63 cm of other species.

634.0.8:582.825
Dipterocarpaceae.

101. Brash center: A review of its causes and influence on wood utilization with reference to Philippine Dipterocarpaceae. R. Z. de la Cruz and D. S. Alonzo. *Philippine Lumberman,* Feb. 1972, v.18, no.2, p.20-22. illus. 21 refs.

In the Philippines, the incidence of brash is extensive in the dipterocarps and to a lesser degree in certain Myrtaceae species. Brashy logs can be utilized as structural material if their properties are thoroughly understood.

634.11:631.5(914)
Apple culture.

102. A guide to apple growing in Baguio and environs. Exequiel B. Ramos, Antonio R. Sales and Crispino O. Ancheta (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1970(1972), v.35, nos.3-4, p.177-202. 8 refs.

Some pointers for the successful growing of apples in the Philippines are discussed in detail. Of the 125 varieties introduced in the Baguio Experiment Station, Rome Beauty, Mill Rome and Jersey Red are commercially grown. So far, about 15-20 ha. are planted to apple in Baguio and environs, most of which are in backyards with only a few orchards consisting of from one to 2 ha. Majority of the apple trees are on lands, thus organic manure is recommended. Pruning is suggested in Jan.-Feb. The average yield of 12-15-yr-old trees is 50-100 fruits, in contrast to 400-500 fruits/tree in Japan.

634.3:631.56 635.3/.6:631.56
Fruit - Storage. Vegetables - Storage.

103. Benomyl and Thiabendazole as postharvest fungicides for fruits and vegetables. N. D. Bondad (College of Agriculture, University of the Philippines, College, Laguna). *Animal Husbandry and Agricultural Journal,* Feb. 1972, v.7, no.2, p.14-16. illus. 16 refs.

Studies conducted at the UP College of Agriculture showed that Thiabendazole at 200 ppm is effective in controlling spoilage of banana. However, it seems injurious to cabbage and tomatoes. Benomyl appears to be a promising fungicide at 500 ppm for both citrus and banana; it is non-phytotoxic to fruits and is less toxic to humans.

634.772:632.358(043)
Bananas - Diseases and pests.

104. Banana mosaic of giant cavendish (Musa cavendish Lamp.) in Southern Cotabato, Mindanao, Philippines. Ruben P. Molina. Victoneta Park, Malabon, Rizal, Araneta University Foundation, Oct. 1971. 8ℓ. 79p. tables, illus. 13 refs. (Thesis. M. S. in Agriculture, Major in Plant Pathology)

Artificial inoculation of different banana varieties with the banana mosaic virus of giant cavendish resulted in severe infection of lakatan *(Musa sapientum* var. lakatan [Blanco] Teodoro) and latundan *(M. sapientum* var. *cinerea* [Blanco] Teodoro). The virus was readily vectored by *Aphis gossypii* Glover and *Rhopalosiphum maidis* Fitch, and by sap inoculation. The incubation period of the disease ranged from 7 to 38 days.

634.8:631.5(914)
Grapes - Philippines. Grapes - Varieties.

105. Grapes now grown in Cebu. *Animal Husbandry and Agricultural Journal,* Jan. 1972, v.7, no.1, p.16.

The successful growing of the marcotted Cardinal and Ribier varieties from cuttings is reported. A 5-yr-old vine was estimated to yield 15 kg/harvest and it is believed that the yield will double in the 10th yr. A survey conducted by the UP College of Agriculture, College (Laguna) revealed that the vine grows in sandy loam or clay loam soil either from cuttings or seeds. The vine bears fruit in 6 mo.-one yr; and in general 4-7-yr-old vines yield 5-8 kg, and the 8-10-yr-old yield 10-15 kg. The Cardinal variety has been found prolific, grows fast and matures early. Other promising varieties are the Thompson Seedless, Ribier, Malaga, Cebu Black, Flame Tokay, Concord, Italia, Red Emperor, Catawba, Green Hungarian, Black Muscat, Lady Finger and Queen.

635.22:547.458
Sweet potatoes - Chemical composition.

106. The relation of carotene and starch content of some twenty-six varieties of sweet potatoes (Ipomoea batatas). Eugenia H. Garcia, Inocencia B. Querido and Adelaida C. Cahanap (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1970(1972), v.35, nos.3-4, p.203-215. graphs, tables. 25 refs.

Chromatographic adsorption analyses of 26 sweet potato varieties indicated high carotene content but low starch content in varieties with deep orange-yellow color. It was also found that the local varieties have lower starch content than the foreign varieties.

635.25:631.563
Onions - Storage.

107. The effects of sand, sawdust, rice straw, rice hull and wood shaving on the storage of onion. Felix D. Lazo, Andres Queddeng and Consuelo M. Caliwag (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1970(1972), v.35, nos.3-4, p.235-242. tables. 2 refs.

The keeping quality of Granex, Red Globe and Hybrid 32 Yellow onion varieties in different storage media was compared. Results showed that Red Globe kept longer in storage than either Granex or Hybrid 32 Yellow. It was found to be stored best in dried fine sand medium. Granex can be stored well for 3 mo. in dried fine sand and sawdust.

635.31.5:632.951
Vegetables - Diseases and pests - Therapeutics. Bayrusil.

108. Insecticides for vegetables formulated. *Animal Husbandry and Agricultural Journal,* Nov. 1971, v.6, no.11, p.18.

Bayrusil which is chemically diethyl-O-(2-chinoxalyl) phosphorothioate is a new insecticide found satisfactorily effective in protecting vegetables, specifically the crucifers, against diamondback moth, cabbage worms, loopers and similar lepidopterous larvae. The insecticide can be sprayed at 7-day interval instead of the usual 2-day interval with other insecticides. It leaves no toxic residues, being a non-cumulative substance.

635.656:631.552:632.5
Beans, Mung. Plant competition.

109. Duration of weed control and weed competition and the effect on yield. I. Mung bean (Phaseolus aureus L.). M. T. Madrid, Jr. and M. R. Vega (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist,* Oct.-Nov. 1971, v.55, nos.5-6, p.216-220. tables. 6 refs.

The study was conducted on a CES 14 mung bean variety plantation populated predominantly with *Rottboellia exaltata* L.f., *Ipomoea triloba* and *Cyperus rotundus*. Results showed that optimum yield was obtained when the field was kept weed-free during the wet season for 5 wks from planting and 3 wks during the dry season. Allowing weeds to compete with the crop for 3 wks from planting caused considerable yield reduction particularly in the wet season planting. The dry season crop tolerated 5 wks of weed competition without significant reduction in yield. Early season weed control for mung bean particularly during the wet season is recommended.

635.8:547.96
Mushrooms - Protein content.

110. Mushroom mycelia for protein. *Animal Husbandry and Agricultural Journal,* Feb. 1972, v.7, no.2, p.4.

A study conducted in the National Institute of Science and Technology (Manila) in 1967 revealed that artificially cultivated *Volvariella volvacea* ("kabuting saging") gave the highest yield and protein content of 49%. With improved medium and technique, mushroom mycelia which were processed into flakes or powdered mushroom showed high protein content of 57%, good amounts of vitamin B like niacin, folic acid, riboflavin and thiamine, and essential amino acids like lysine, methionine and tryptophan. The protein content approximates closely that of a well-known food yeast, *Torulopsis utilis*.

ANIMAL HUSBANDRY AND PRODUCE

636.2:591.134(043)
Cattle - Performance records and registration.

111. The influence of precipitation, air temperature, and relative humidity on the monthly distribution of calves dropped and on the gains in weight of steers and heifers. Macario

Fortich Saniel, Jr. Victoneta Park, Malabon, Rizal Araneta University Foundation, Nov. 1971. 8*ℓ*. iv, 3*ℓ*. 135p. map, tables, illus. 60 refs. (Thesis. M. S. in Agriculture, Major in Beef Cattle and Forage Management)

During the period 1966-1970, records from the Araneta University Foundation revealed a total of 65 calves dropped. The blood composition of the dam of calves dropped was a conglomeration of Indu-Brazil, Santa Gertrudis, Holsteins and Batangas. In the Central Mindanao University (Bukidnon), 622 calves were born mostly a mixture of Nellore, Red Sindhi, Brahman and native cattles. It was noted that the climatological factors had no direct influence on the monthly distribution of calves dropped and on the weight gain of range steers and heifers.

636.2:591.16
Cattle breeding. Estruation - Cattle.

112. Know when your cow is pregnant. O. A. Palad and E. G. Wagelie. *Better Poultry and Livestock*, Dec. 1971, v.13, no.4, p.14-16, 18-19.

The accuracy of 6 pregnancy tests was evaluated. It was observed that estradiol test was the most accurate (93.2%) when used 31-45 days after breeding followed by vaginal-cervical secretion test (86.1%) and the urine test (82.2%). The accuracy of the 3 tests increased as gestation advanced. Estradiol injections had no harmful effect on the estrus cycle of non-pregnant animals and did not induce abortion in pregnant cows. Rectal palpation was mentioned as the single test that can detect early pregnancy in cattle with high accuracy after 60 days. However, estradiol and urine tests combined may prove accurate 60 days after breeding in place of rectal palpation.

636.2.085 636.2:612.616.1
Cattle - Feeding - Experiments.
Cattle - Castration.

113. Effects of castration and ration on feedlot performance, slaughter and carcass characteristics, and carcass yield of grade Batangas cattle. F. B. Aglibut, J. C. Madamba and C. B. Perez, Jr. *Animal Husbandry and Agricultural Journal*, Feb. 1972, v.7, no.2, p.28, 30-31. tables. 11 refs.

Observations made on 20 grade beef cattle revealed that bulls had higher liveweight gains and feed conversion efficiency than steers. Also, the cattle fed with high energy ration consisting of concentrate mixture fed at 1.5% of the body weight and corn stover, ad libitum, had high liveweight gains, chilled carcass weight, dressing percentage and total weight of lean trimmings.

636.2.085 636.293.085
Cattle - Feeding. Carabaos - Feeding.

114. The feeding value of Napier grass *(Pennisetum purpureum* Schumach) for cattle and carabaos. A. Y. Robles, A. L. Ordoveza and T. J. Aranas. *Animal Husbandry and Agricultural Journal*, Feb. 1972, v.7, no.2, p.32-34. tables. 23 refs.

Eight castrated carabaos *(Bubalus bubalis)* and crossbred Holstein-Red Sindhi *(Bostaurus-Bos indicus)* were used in the study. It was found that Napier soilage is adequate to maintain body weight gains of 0.16 kg/day for growing ruminants. The grass at 45 days regrowth was more digestible, and promoted better nitrogen retention and liveweight gains compared to that at 60 days regrowth. In general, carabaos had better digestion of all nutrients than the Holstein-Red Sindhi.

636.293:591.134
Carabaos - Pelvimetry.

115. Pelvimetry in Philippine native carabaos (Bos bubalis). Dan S. P. Libunao. Quezon City, College of Veterinary Medicine, University of the Philippines, Oct. 1971. 4*ℓ*. 17p. tables. 6 refs. (Thesis. Doctor of Veterinary Medicine)

Measurement of the pelvic cavity was done on freshly slaughtered male and female Philippine carabaos, aged 2-21 yrs. A statistically insignificant difference in the pelvic measurements between the males and females was noted. Compared with data on cows, the female Philippine carabaos are smaller. Also, the female Philippine carabaos gave smaller minimum but larger maximum measurements than those reported for female Murrah buffaloes.

636.39:591.134(043) 636.39:591.11(043)
Goats, Weight and measurements of.
Blood - Analysis and chemistry - Goats.

116. A study on the external body measurements, blood chemistry, quality of milk produced and heterosis among upgrade Anglo-Nubian goats. Subchoke Srisakorn. Victoneta Park, Malabon, Rizal, Araneta University Foundation, Nov. 1971. 20*ℓ*. 111p. tables, illus. 23 refs. (Thesis. M. S. in Animal Husbandry, Major in Animal Breeding and Nutrition)

The study involved 40 upgrade Anglo-Nubian and 12 Philippine native goats. Compared with

Philippine native goats, the upgrade goats had bigger body measurements, higher erythrocyte count and higher blood composition in terms of glucose, uric acid, total protein, total cholesterol, sodium and calcium. Also, milk quality of the upgrade goats in terms of sp. gr., total solids, solids-non-fat and butterfat was within normal.

636.4:591.16
Swine breeding. Estruation - Swine.

117. Anestrus in swine and its treatment with 'Apocrine-oil' and/or 'Destrol'. Mauro F. Manuel (College of Veterinary Medicine, University of the Philippines, Quezon City). *Animal Husbandry and Agricultural Journal,* Dec. 1971, v.6, no.12, p.14-16. tables. 9 refs.

Experiments conducted on 157 non-pregnant sows and 95 gilts showed that "Apocrine-oil" either singly or in combination with "Destrol" may be used to treat anestrus in both sows and gilts to hasten and increase production. Treatment with "Destrol" gave no practical result. "Apocrine-Destrol" combination promoted higher conception rate and generally good litter size than either "Apocrine-oil" or "Destrol" alone. The best breeding time with this combination is between 3 1/2 and 4 days post-treatment for sows and between 4 and 4 1/2 days post-treatment for gilts.

636.4.082
Swine breeding - Crossbreeding.
Swine - Performance records.

118. A study on the color pattern inheritance, birth weight and hundred eighty days weight of crossbred, upgrade and triple-crossed swine. Joompol Ratanapimol and Marciano D. Yanga (Araneta University Foundation, Malabon, Rizal). *Araneta Journal of Agriculture,* Oct.-Dec. 1971, v.18, no.4, p.191-234. tables. 26 refs.

Results revealed that pure white sucklings gave efficient performance and records with regards to color patterns inherited from both parents, litter sizes and birth weights compared to colored sucklings. Also, the white barrows demonstrated heavier weights than the colored barrows at 180 days. Further studies on the relation of color to reproductive life, mortality and environment are recommended.

636.4.082.4
Swine - Performance records and registration.

119. Some observations on the farrowing of swine. Salvador H. Escudero, III and Guillermo E. Quejada (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* Dec. 1971, v.10, no.2, p.109-121. tables. 12 refs.

A total of 405 farrowing sows of the Danish Landrace, Large White, Duroc Jersey and Middle White breeds were studied. Results showed that 57% of farrowings occurred at night and 43% occurred during the day; however, the difference was found statistically insignificant. The average length of farrowing time observed was about 4 hrs. The number of teats ranged from 8 to 14 and it was noted that sows with more teats usually had larger litter. Of the 405 sows, 8 gave birth to more piglets than the number of teats, with a preponderance of males (53.3%) over females (46.7%). Studies on methods of altering the sex ratio to favor the female is suggested.

636.5.081/.082.4
Poultry raising.

120. Breeding and selection in poultry raising. Pablo B. Agcanas (Bureau of Animal Industry, Mandaluyong, Rizal). *Animal Husbandry and Agricultural Journal,* Jan. 1972, v.7, no.1, p.27-30. tables. 2 refs.

The first step in poultry breeding work is the selection of males and females to be used as breeders. Selection is based on vigor, breed, varietal and production characteristics. Males and females selected are bred according to one of the 3 systems - inbreeding, outbreeding and grading. The factors affecting egg and meat productions through breeding are discussed.

636.5.085(043)
Feed utilization efficiency - Poultry.
Poultry - Feeding - Experiments.

121. An exploratory study on the effect of powdered paper, rice hull, chicken manure and sawdust added to a-one feed broiler mash upon the growth rate, feed conversion and livability of 75 per cent Cornish x 25 per cent White Leghorn chicks. Benito B. Lorenzo. Victoneta Park, Malabon, Rizal, Araneta University Foundation, Nov. 1971. 7*ℓ*. 41p. 1*ℓ*. tables. 17 refs. (Thesis. M. S. in Agriculture, Major in Animal Breeding and Nutrition)

Birds fed with A-one broiler feed mash

during a period of 8 wks were active with a gain in weight of 945.5 g. Supplementation with 15% powdered paper and 20% rice hull promoted lower weight gain and the birds were less active than those fed with 10-20% dried manure. Only one mortality was noted among birds fed with 40% sawdust feed. The feed conversion ratio of birds fed with chicken manure was low.

636.597.082.4
Duck farm management.

122. Duck raising - a backyard industry. *Sugarcane Farmers Bulletin,* Nov. 1971, v.6, no.2, p.13-15.

Procedures in hatching, care and feeding of ducklings, housing and disease control are discussed. For breeding purposes, ducks should be selected as early as the 8th wk and again at the 4th and 5th mo. before placing the breeders in the breeding pens. For hatching purposes, eggs should be selected from not less than 7 mo. old to insure fertility, hatchability and livability of the offspring.

637.141:637.127
Butterfat. Milk - Solids-not-fat content.

123. Monthly variation in fat and solids-not-fat of Holstein and Jersey milk in the Philippines caused by season of the year. Benjamin J. Samala. *Araneta Research Journal,* Jan.-March 1972, v.19, no.1, p.7-24. graphs, tables. 15 refs.

Analysis of milk samples from 253 cows showed that with a slight lowering in atmospheric temp., the fat content increased by 0.1750-0.1830 in the Holstein and 0.2304-0.3250 in Jersey. The highest level of fat in milk was noted during the cool months. The solids-not-fat content seemed not to be affected by temp. and R.H.

It is suggested that cows be fed with high energy ration but limited low-fiber ration during periods of high temp. and R.H. to overcome the depressing effects of weather in the tropics.

DOMESTIC SCIENCE

641.1:613.26/.28
Food values. Pyridoxine.

124. Vitamin B_6 content of some Philippine foods. I. Raw foods. Aurea V. Lontoc, Leogarda B. Dimaunahan and Olympia N. Gonzalez (National Institute of Science & Technology, Manila). *Philippine Journal of Nutrition,* Oct.-Dec. 1971, v.24, no.4, p.209-221. table. 11 refs.

A total of 262 food samples were analyzed by the microbiological assay method using *Saccharomyces carlsbergensis* as the test organism. Results showed that yeasts are the richest in vitamin B_6 with values ranging from 1525 to 2339 mcg B_6/100 g, followed by leafy vegetables, with 604-1203 mcg B_6/100 g and liver with 600-700 mcg B_6/100 g. Shellfishes, fresh milk and milled rice were found to have small amounts of vitamin B_6.

648.7:595.77 631.86:636.293:595.77
Insect baits and repellents.
Carabao manure - Insect control.

125. Carabao manure is used in making mosquito coil. *Animal Husbandry and Agricultural Journal,* Nov. 1971, v.6, no.11, p.31.

The preparation of mosquito coil from carabao manure was studied by Romeo Munda of the Manila Science High School. 1903 g of dried carabao dung could make 453 coils, costing ₱0.02 for the ingredients. Each coil measures 30-35 cm long. Studies showed that carabao manure contains calcium cyanamide which is an effective pesticide.

CHEMICAL AND ALLIED INDUSTRIES

664.8.036.5/.6:634.616.002.6
Coconut milk. Canning and preserving.

126. Preserving the coconut 'gata' in cans, bottles. *Philippine Inventors Bulletin,* Nov.-Dec. 1971, v.2, no.3, p.13. illus.

Canned or bottled 'gata' is similar in composition to the freshly prepared 'gata' and also a good substitute for fresh coconut. They are stable on storage at room and refrigerated temp. without any manifestation of layer separation or solidification. Tests showed that the processed 'gata' products were free from rancidity during storage and commercially sterile.

664.82
Infants' food - Composition.
Coconut products.

127. Development of drum-dried weaning foods based on indigenous high-protein sources. I. Coco cereal weaning flakes based on coconut protein isolate. Estelita M. Payumo, Pacita R. Briones and Estrella A. Banzon (National Institute of Science & Technology, Manila). *Philippine Journal of Science,* Sept.-Dec. 1970(1972), v.99, nos.3-4, p.107-116. graph, tables. 20

refs.

High protein weaning food in flake form was prepared from a blend of rice flour, mung bean flour, fish protein concentrate and coconut protein isolate. The mixture was fortified with vitamins A and B. The product with a protein content of 39% has good storage properties even after 6 mo. at room temp. Biological evaluation showed that the protein has good properties and amino acid analysis revealed an essential amino acid pattern approximating closely that of the FAO reference pattern except for methionine, threonine and isoleucine. The product compares favorably in organoleptic properties with that of an imported product. - Authors' Abstract

667.21.001.4
Dyes and dyeing - Color fastness.

128. **PTRI standard Grey Scale for assessing change in color.** Taguig, Rizal, Philippine Textile Research Institute, 1971. 4p. tables. (PTRI no.3)

The PTRI standard was adopted with modifications from the ISO Recommendation R105 Tests for Color Fastness of Textiles, First Series, Part 2. The standard describes the International Grey Scale for assessing changes in color of textiles for fastness test and its use. A precise colorimetric specification of the Scale is given as a permanent record against which newly prepared working standards and standards that may have changed can be compared.

668.47/.48
Resinous products.

129. **Naval stores.** E. C. Salud. College, Laguna, Forest Products Research & Industries Development Commission, Dec. 1971. 2p. 9 refs. (Technical note no. 112)

Naval stores is a trade name for reactive oils, resins, tars and pitches derived from oleoresin contained in, exuded by or extracted from pine species (genus *Pinus)*. Chemical analysis of the gum oleoresin collected from turpentined Benguet pine showed that the crude oleoresin had 15-25% turpentine consisting of 93.6% alpha-pinene, 1.5% camphene, 1.1% B-pinene, 1.5% B-phellandrene and traces of other terpenes. Mindoro pine gum oleoresin had 13% turpentine consisting of 97% alpha-pinene, 1% undecane, 1% alpha-phellandrene and traces of other terpenes. Recent studies on rosin sizes for papermaking indicated that rosin sizes from Benguet and Mindoro pine gum oleoresins have excellent sizing characteristics comparable with commercial size.

669.3.053
Copper metallurgy. Extraction processes.

130. **Electrical grade copper through solvent extraction.** Cesar V. Campos and Manolo M. Quiray (A. Soriano y Cia., Makati, Rizal). *Philippine Mining Record,* Dec. 1971, v.6, no.1, p.20, 22, 24, 26. flowsheet, illus. 7 refs.

Solvent extraction is a process wherein refined copper bars suitable for the manufacture of electrical wires and cables can be produced. With this process, the presence of ammonium carbonate facilitates phase disengagement, resulting in shorter contact-retention time and higher loading capacity for the organic extractant. The contaminants are practically nil by the time copper is finally deposited as cathode by electrowinning. Extraction capacities are controlled by operating parameters, such as pH values, concentration of organic reagent, copper content of aqueous solution and organic-to-aqueous flow ratios. It is, therefore, recommended that in countries which do not have copper smelters nor refineries but have an abundant supply of copper bearing ores and materials like the Philippines, solvent extraction with ammonia leaching and electrowinning should prove efficient and economical for the production of high grade copper.

WOODWORK AND TIMBER INDUSTRY

674.03:620.17
Wood - Physical properties.

131. **Strength variation within a tree.** R. Z. de la Cruz and J. O. Siopongco. *Philippine Lumberman,* Jan. 1972, v.18, no.1, p.54, 56, 58. tables, illus. 9 refs.

The influence of height and pith orientation on specific gravity and strength properties of wood from almon tree *(Shorea almon* Foxw.) was investigated. Results indicated that height was found to have significant influence on the strength properties, but no consistent trend was noted. However, a consistent and significant trend in the increase of strength from the pith towards the bark was observed. The other properties were relatively lower near the pith than near the bark, but the magnitudes were not significantly different.

674.03.04
Lumber - Drying.

132. **Moisture absorption of kiln-dried guijo [Shorea guijo (Blanco) Blume].** Ernesto B.

Ordinario. *Wood Preservation Report* (Forest Products Research & Industries Development Commission, College, Laguna), Nov.-Dec. 1971, v.6, no.6, p.3-10. graphs, tables. 3 refs.

A rapid rate of moisture absorption was observed in kiln-dried guijo during the first month of exposure irrespective of the method of piling. Planed boards had higher absorption rate than rough ones, although the difference was insignificant. Boards piled with stickers gave the highest absorption rate. The increase in moisture content effected an increase in dimension, and a reduction in moisture gradient and residual stresses.

674.03.04
Wood preservation.

133. A preliminary study on the treatment of coconut [Cocos nucifera L. (Palm)] trunks and other palm species for electric power transmission poles. Arnaldo P. Mosteiro. *Wood Preservation Report* (Forest Products Research & Industries Development Commission, College, Laguna), Nov.-Dec. 1971, v.6, no.6, p.11-14. illus. 2 refs.

The treatability of mature coconut trees with dia. of 10-12 in. and anahaw trees with dia. of 8-10 in. using coal-tar creosote as preservative was studied. Of the 3 treatment methods tried, boiling-under-vacuum (Boultonizing) followed by a full-cell process, and steaming-and-vacuum followed by a full-cell process gave an almost total penetration and distribution of preservative. The hot and cold bath methods effected insufficient creosote penetration probably due to the high moisture content of the specimen. Total penetration with severe collapse in the core portion of anahaw was obtained with the boiling-under-vacuum method followed by the full-cell process.

674.03.04
Wood preservation.

134. Report on the 10th year service of creosoted apitong (Dipterocarpus sp.) and other tie species in the Philippine National Railways. Felino R. Siriban. *Wood Preservation Report* (Forest Products Research & Industries Development Commission, College, Laguna), Jan.-Feb. 1972, v.7, no.1, p.4-9. table, illus.

Experiments were conducted on apitong *(Dipterocarpus* sp.) and other railway tie species treated with 70/30 creosote/bunker oil mixture and provided with metal plates. Of the species studied, the treated apitong ties with metal base plates installed on the Philippine National Railways at College Railroad Station showed excellent resistance to rail-cutting and were found in fair serviceable condition, except for slight surface checks. 75% of the treated species without metal base plates installed on the tracks near IRRI Railroad Crossing were found moderately rail-cut at the railseat ranging from 0.064 to 1.27 cm deep. Most of these ties are on the rail joints and/or improperly ballasted. Slight surface checks were also noted. Results indicated that creosote treatment as well as the use of metal base plates and the proper ballasting prevent rail-cutting and other serious mechanical deterioration and prolong the life of the railway ties.

674.03.04
Wood preservation. Wood borers.

135. Effectiveness of wood preservatives and treatment against marine borers in Philippine waters. F. R. Siriban. *Forpride Digest,* Jan.-March 1972, v.1, no.1, p.41-42.

Air-dried apitong *(Dipterocarpus grandiflorus* Blanco) specimens treated with Tanalith C and creosote, Tanalith C, and Boliden K-33 and Boliden S-25 were exposed in sea water in Cavite City. Martesia and limnoria were found to be the most active types of marine borers. Of the water-borne preservatives tested, Boliden K-33 gave the most effective protection against marine borer attack. Moreover, double-treatment with water-borne preservative followed by creosote was found promising in protecting wooden marine structures.

674.04(914):620.192
Wood - Shrinkage and swelling.

136. Shrinkage of Philippine woods. A. R. Floresca. *Forpride Digest,* Jan.-March 1972, v.1, no.1, p.35.

The shrinkage values from green to 12% moisture content and from green to oven-dry condition of some species of Philippine woods including the radial- and tangential-unit shrinkages were determined. Preliminary findings showed that kapok *(Ceiba pentandra)* and Peruvian Parasol *(Cavanillesia hylogeiton)* had the lowest radial shrinkage values from green to oven-dry condition, while narra *(Pterocarpus indicus),* caña-fistula *(Cassia fistula),* teak *(Tectona grandis),* antipolo *(Artocarpus blancoi)* and big-leafed mahogany *(Swietenia macrophylla)* had the lowest tangential shrinkage values. Earpod *(Enterolobium cyclocarpum)* and rarang *(Erythrina subumbans)* were found to have low radial and tangential shrinkage values.

PAPER AND PULP INDUSTRIES

676.1.02.03 676.2.02
Paper manufacture. Manila hemp.

137. Semi-commercial pulping trial of abaca. Amado C. Garcia and Pergentino T. Franco (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1970 (1972), v.35, nos.3-4, p.103-125. flowsheet, plates, tables. 7 refs.

The processes involved in utilizing abaca ribbons (crushed leafsheaths) as pulping materials in the manufacture of wrapping paper are briefly discussed. Experiments showed that abaca ribbons required higher liquor-to-material ratio in the pulping process, but lower pressure and shorter cooking time than wood. The pulp yield ranged from 22 to 37 k/ton of fresh abaca stalks of the variety used. The pulp obtained is dark brown and the paper produced is brownish with minute specks. The physical properties of pure abaca pulp handsheet were found better than those of commercial wrapping, indicating that abaca pulp can compete with world market price and provide reasonable income if only an efficient method of preparing abaca ribbons and pulping processes be developed.

676.16
Wood pulp. Shorea.

138. High alpha pulp from almon (Shorea almon Foxw.) Edgar M. Medrano and Benefrida O. Bawagan (FORPRIDECOM, College, Laguna). *Philippine Lumberman,* Feb. 1972, v.18, no.2, p.26-29. tables. 15 refs.

Dissolving pulp of satisfactory chemical characteristics was produced from almon by a suitable combination of prehydrolysis, sulfate pulping and multi-stage bleaching sequence. About 87-95% of the pentosans were removed. Bleached pulp yield ranged from 93.4 to 93.7% with about 85% brightness.

676.16.017
Wood pulp - Testing.

139. Bleached kraft-pulps of the Philippine mahogany species. Eduardo P. Villanueva, Pablo M. Nicolas and Cresencia H. Ballon (FORPRIDECOM, College, Laguna). *Philippine Lumberman,* Jan. 1972, v.18, no.1, p.60, 62, 64-66. tables. 6 refs.

Seven Philippine mahogany species were evaluated as pulpwood materials according to fiber dimension, proximate chemical analysis, sulfate-pulping qualities and response of the pulps to a conventional 3-stage bleaching process. Results showed that bleached pulp lauan and tiaong had the highest resistance to the degradation reaction of the chlorine and hypochlorite treatments. The strength properties of white lauan bleached pulp ranked first in folding endurance and tensile strength, while the highest bursting strength and tearing resistance were observed with the bleached sulfate pulp of tiaong. In the unbleached pulp category, bagtikan *(Parashorea plicata* Brandis) had the highest pulp yield with 51.2%; red lauan *(Shorea negrosensis* Foxw.) and white lauan [*Pentacme contorta* (Vid.) Merr. & Rolfe], the most outstanding overall strength properties; and almon *(Shorea almon* Foxw.), the highest tearing resistance.

676.16.017
Wood pulp - Testing.

140. Kraft-pulping studies on bagtikan *(Parashorea plicata* Brandis). C. P. Estudillo and R. V. Visperas. *Forpride Digest,* Jan.-March 1972, v.1, no.1, p.33.

Chemical pulps were produced from bagtikanwood chips by the sulfate process. The influence of the chemical concentration on pulp yield, bleachability and strength properties were determined by varying the active alkali from 12 to 20% and the sulfidity from 15 to 25.5%, keeping the other pulping conditions constant. The yield and permanganate number of the pulp increased as the chemical charge decreased. The strength properties of the sulfate pulps improved with decreasing levels of active alkali and sulfidity within the ranges used in the study. Among the Philippine hardwood species tested, bagtikan *(Parashorea plicata* Brandis) was found to have the highest lignin and holocellulose contents but relatively the lowest solubilities in NaOH and hot water and the lowest alcohol-benzene extractives.

676.16.017
Wood pulp - Testing.

141. Remarkable pulpwood potentials of some Philippine reforestation-timber species. E. P. Villanueva. *Forpride Digest,* Jan.-March 1972, v.1, no.1, p.32.

The study, using moluccan sau [*Albizzia falcata* (L.) Bark], yemane *(Gmelina arborea* Roxb.) and kaatoan bangkal [*Anthocephalus chinensis* (Lamk.) Rich ex Walp.] species, revealed that these species responded satisfactorily to the kraft-pulping process and produced moderate to easy bleaching pulps with average yields of 53.8%, 55.7% and 47.3%, respectively.

COMPUTING DEVICES

681.14:539.125.5.172
Computers - Programming.
Neutrons - Diffraction.

142. Neutron diffraction magnetic intensities program. L. P. Bartolome, M. C. M. Akol, M. G. Natera and Q. O. Navarro (Philippine Atomic Research Center, Quezon City). Manila, Philippine Atomic Energy Commission, Jan. 1972. 13p. 1 ref. [PAEC(D) 721]

A computer program for the computation of the magnetic intensities of Bragg reflections in neutron diffraction is presented. The program is in FORTRAN II language for use with a FACOM 230-20/30 machine. It was patterned after the format of an existing FORTRAN program.

681.14:548.73
Computers - Programming.
Crystallography - Neutron diffraction studies.

143. Structure factor program. L. P. Bartolome, M. C. M. Akol, M. G. Natera and Q. O. Navarro (Philippine Atomic Research Center, Quezon City). Manila, Philippine Atomic Energy Commission, Jan. 1972. 25p. 2 refs. [PAEC(D) 722]

A FORTRAN program which calculates the structure factors for all crystal classes for neutron diffraction works as well as for x-ray cases is presented. The program is in FORTRAN II language for use in a FACOM 230-20/30 machine.

IRONMONGERY

683.5:608.3
Carbonated beverages - Apparatus and supplies.
Patents and inventions.

144. Bottle opener with automatic straw dispenser. Marte Ros Torres (Philippine Inventors Commission, Quezon City). *Philippine Inventors Bulletin,* Nov.-Dec. 1971, v.2, no.3, p.22. illus.

The apparatus, invented by Zoilo Manaloto with Philippine Pat. No.4901, can open bottles and simultaneously place the straw one needs at the right moment without additional effort. It consists of a cylinder straw magazine appropriately assembled like a tilted cylindrical shell integrated with the bottle opener mechanism situated underneath. It can be mounted securely on posts, walls and other similar supports. It uses no electricity or any other power except that originating from natural force involved in the opening of the bottle.

BUILDING INDUSTRY

693.55:389.151 694.1:389.151
Metric system.

145. Design suggestions on use of metric for construction. Rogelio S. Talastas (Bureau of Public Highways, Manila). *Philippine Architecture, Engineering & Construction Record,* Jan. 1972, v.18, no.10, p.10, 12. illus.

Descriptive examples and equations illustrating the merits of shifting to metric system with quantitative analysis on the reinforcement of steel bars and on lumber are given. The system was found to be economical and practical based on the consumption of basic construction materials.

LIST OF PUBLICATIONS ABSTRACTED

NOTE: Listed hereunder are the publications from which pertinent articles are abstracted in this issue.

A. PERIODICALS

- Acta Manilana
- Acta Medica Philippina
- Animal Husbandry and Agricultural Journal
- Araneta Journal of Agriculture
- Araneta Research Journal
- Better Poultry and Livestock
- Filipino Family Physician
- Forest Products Research & Industries Development Commission
  - Technical Note
  - Wood Preservation Report
- Forpride Digest
- IRRI Reporter
- Journal of the Geological Society of the Philippines
- Journal of the Philippine Medical Association
- Mineral Engineering Magazine
- Philippine Agriculturist
- Philippine Architecture, Engineering & Construction Record
- Philippine Atomic Energy Commission PAEC (D)
- Philippine Farmers' Journal
- Philippine Inventors Bulletin
- Philippine Journal of Home Economics
- Philippine Journal of Nutrition
- Philippine Journal of Pediatrics
- Philippine Journal of Plant Industry
- Philippine Journal of Science
- Philippine Journal of Surgical Specialties
- Philippine Journal of Veterinary Medicine
- Philippine Lumberman
- Philippine Mining & Engineering Journal
- Philippine Mining Record
- Reforestation Monthly
- Santo Tomas Journal of Medicine
- Silliman Journal
- Sugarcane Farmers Bulletin

B. OTHER DOCUMENTS

Papers:

- International Rice Research Institute
- Mindanao State University Research Center
- National Institute of Science and Technology
- Philippine Textile Research Institute
- 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference Nov. 29-30, 1971, Manila
- UNESCO Regional Seminar on Wind Effects on Buildings and Structures, Nov. 22-26, 1971 Manila

Theses:

- Araneta University Foundation
- University of the Philippines College of Veterinary Medicine

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PHILIPPINE ABSTRACTS

A quarterly classified summary of the latest Philippine publications in the field of science and its applications (UDC 5 and 6)

Vol. 14, Nos. 3-4 July-December 1973

CHEMISTRY

547.426.2
Trilaurin. Esterification.

146. Preparation of trilaurin: Chromatographic study of reesterification of methyl laurate with glycerol. Sixta Unsua. Manila, 1972. 19p. 17 refs. Mimeographed. (Paper presented at the National Science and Technology Week Symposium, July 10-16, 1972, Manila)

Methyl laurate with glycerol in the presence of NaOH as a catalyst was reesterified. The purified trilaurin obtained gave a saponification equivalent of 211.19 and a melting point range of 45°-46°C. Results of experiments showed that the reaction temp. was 250°C. Based on weight of methyl laurate used, 0.4% NaOH concentration gave better results.

547.96:581.45
Plant proteins - Analysis.

147. Plant leaves as potential protein sources. L. S. P. Madamba, R. R. Pisigan, Jr., F. B. Javier and G. C. Lugod (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist,* Aug.-Sept. 1972, v.56, nos.3-4, p.114-122. table, illus. 10 refs.

Crude protein contents of 10 tree and 7 herb leaf samples were determined at different stages of maturity. Results showed that the tree leaves contain more protein than the herb leaves. Katuray tree has the highest protein level (36.17%) while Asistasiya, an herb, has the lowest (10.14%) in the moisture-free basis. Crude protein declined with advancing leaf maturity which, however, varied among the leaves. No correlation between the rate of decline in protein content and the initial amount of protein in the leaves was observed.

549.743.21
Dawsonite.

148. Formation of dawsonite by decomposition of sodium aluminate solution with carbon dioxide. Rolando B. Cada (Bureau of Mines, Manila), Itaru Ishijima and Yuko Saeki (Tokyo Institute of Technology, Japan). Manila, Bureau of Mines, June 1972. 20p. graphs, tables, illus. 4 refs. (Report of investigation no. 72)

Experiments showed that dawsonite forms from $NaAlO_2$ solution at pH 9.3-12. The purity and the crystal size of the compound in the precipitate increased with increasing temp. and molar ratio, and the range of formation was wider at high molar ratio. Examination of the precipitates by x-ray diffraction, electron microscopy, thermal analysis, flame photometry and the conventional wet analysis method showed the feasibility of producing dawsonite with a purity up to 99.1% and the possibility of isolating the same from $NaAlO_2$ solution.

GEOLOGY

550.837.3
Geophysics - Electric.

149. Resistivity survey of the Tiwi geothermal fluid. Olimpio Peña. *COMVOL Letter,* Jan.-April 1972, v.6, nos.1-2, p.1-8. graphs, maps, diagr.

Resistivity mapping and electrical drilling were the methods used in the survey of the Tiwi geothermal field in Albay. The salient features of the iso-resistivity maps and their implications are discussed briefly. It is recommended that drilling a 2000-ft hole or deeper be done, and the survey be extended to the southernmost portion of the area. This will verify if the magnetic low appearing in the iso-magnetic map is also a resistivity low.

ARCHEOLOGY

571.2
Chert.

150. An analysis of a sample of the Sohoton lithic assemblage. Robert F. Bevacqua. *Leyte-Samar Studies,* 1972, v.6, no.2, p.69-83. graphs, illus. 1 ref.

Results showed that the Sohoton lithic assemblage can be characterized by: 1) an almost exclusive presence of chert flakes and fragments; 2) a complete absence of specialized forms of shaped tools; 3) a tremendous amount of variability in the form and size of the lithics; and 4) a stable or unchanging nature throughout the time span represented in the Sohoton Cave deposit.

BOTANY

581.6:582.542.1
Allergens. Gramineae.

151. Field survey of probable allergenic plants in the Makati area, 1968-69. Irma C. Remo and Gloria Laserna (National Institute of Science & Technology, Manila). *Philippine Journal of Science,* March-June 1970(1972), v.99, nos.1-2, p.13-16. 6 refs.

The widely predominant grasses noted were yard grass [*Eleusine indica* (L.) Gaertn.] and alabang-x [*Dicanthium aristatum* (Poir.) C.E. Hubb.]. Foxtail [*Pennisetum polystachyon* (L.) Schult.] was found moderately predominant, and java grass [*Polytrias amaura* (Buse) O.Ktze.] jungle grass [*Echinochloa colonum* (L.) Link.], talahib (*Saccharum spontaneum* Linn.)and delhi grass [*Bothriochloa ewartiana* (Don.) C.E. Hubb.], rarely predominant. It was observed that the succession of dominant flowering grasses could be attributed to their inherent characteristics and environment.

582.475:581.48
Pine cones. Pine - Seed.

152. Cone handling, seed quality and seed testing of Pinus merkusii. A. G. Gordon, Isidro D. Esteban and D. C. Wakeman. *Philippine Lumberman,* May 1972, v.18, no.5, p.26-29. tables. 5 refs.

Cones of *Pinus merkusii* collected from Zambales were tested locally and in Britain. Results showed that good quality seeds can be produced and maintained up to 3 yrs provided that initial handling procedures are optimal. Thus only mature cones should be used; the seed should be extracted as soon as possible after cone collection and then placed in cold storage as soon as possible after extraction. The seeds should not be removed from cold storage for long periods before usage, but prechill tests did not promote higher percentage germination. It seems that the accurate method of assessing the viability of *P. merkusii* seed is by actual germination at 25°C or alternating 20°-30°C.

582.825:581.54(914)
Dipterocarpaceae.

153. Phenology of some Philippine Dipterocarpaceae. Benigno A. Lomibao (FORPRIDECOM, College, Laguna). *Forpride Digest,* Jan.-March 1972. v.1, no.1, p.65-70. tables. 7 refs.

The phenology of 30 dipterocarp species of *Anisoptera, Dipterocarpus, Hopea, Parashorea, Pentacme, Shorea* and *Vatica* are discussed. Based on the data from herbarium vouchers of fertile botanical specimens and/or field observations in 18 provinces, the flowering and fruiting seasons were found to vary considerably from year to year; in most cases, the variability may be attributed to the response of plants to day length and temp. It was noted that the dominant, co-dominant and isolated dipterocarp trees produced more flowers than those in the lower crown-story level.

582.949.1:581.412(914)
Verbenaceae. Wood - Physical properties.

154. Wood structure, characteristics & properties of six Vitex species of the Philippine Verbenaceae. B. A. Lomibao and R. M. Salva (FORPRIDECOM, College, Laguna). *Philippine Lumberman,* March 1972, v.18, no.3, p.24-26, 28-29. illus. 14 refs.

The structure, general characteristics and properties of 6 species of *Vitex* are briefly described. The species studied were: *V.glabrata* R. Br. (bongoog), *V. negundo* Linn. (lagundi), *V. quinata* (Lour.) F. N. Will. (kalipapa), *V. parviflora* Juss. (molave), *V. pubescens* Vahl. (hairy-leafed molave) and *V. turczaninowii* Merr. (lingo-lingo).

ZOOLOGY

591.69-43-51
Trematodes - Larvae - Parasitic in mollusks.

155. Mollusks of parasitological significance in the Philippines. Carmen C. Velasquez (College of Arts and Sciences, University of the Philippines, Quezon City). Quezon City, University of the Philippines, June 1972. 16p. illus. 27 refs.

The life cycles of flukes (Trematoda) and roundworms (Nematoda) harbored by 12 species of mollusk are briefly described. The role of mollusks in the development of the larval stages of the parasitic helminths is emphasized.

595.3(914)
Decapods (crustaceans).

156. The family Raninidae and other new and rare species of Brachyuran decapods from the Philippines and adjacent regions. Raoul Serene and Agustin F. Umali. *Philippine Journal of Science,* March-June 1970(1972), v.99, nos.1-2, p.21-105. plates, illus. 94 refs.

A checklist of 31 species is presented. 2

genera, *Guinotellus* and *Peleianus* and 4 species, namely *Cyrtorhina balabacensis*, *Parthenope (rhinolambrus) sisimanensis*, *G. melvillensis* and *P. suluensis* are new and the other species are either second records or rediscoveries. 10 other species from Japan, Singapore and Thailand were studied to provide a clearer understanding of the regional fauna as a whole and thereby 2 new subfamilies are established and one, discarded for a century, is revived.

595.73:591.5
Termites.

157. Some observations on the habits and behavior of drywood termites. Delia Calora. *Wood Preservation Report* (FORPRIDECOM, College, Laguna), March-April 1972, v.7, no.2, p.8-11.

The local species of drywood termites are: *Kalotermitidae mcgregori* Light, *K. taylori* Light, *Neotermes grandis* Light, *N. lagunensis* (Oshima), *N. malatensis* (Oshima), *N. micropthalmus* Light, *N. parvisculatus* Light, *Glyptotermes chapmani* Light, *G. franciae* Snyder, *G. magsasayi*, *Cryptotermes cyanocephalus* and *C. dudleyi* Banks, of which tha latter 2 are the most common. The life history, habits and behavior of the insects like dealation, pairing and colony foundation are briefly discussed.

595.789:591.5(914)
Butterflies.

158. Life history notes on Philippine nymphalids (Lepidoptera-family Nymphalidae). Julian N. Jumalon. *Philippine Scientist*, 1972, v.9, p.41-50. illus. 3 refs.

The immatures of 9 Philippine butterflies as well as their local food plants are briefly discussed.

599.323:595.1 599.323:591.2
Rats - Diseases and pests.

159. Thiabendazole in the feed and its effect on the somatic Toxocara canis larvae in white rats. Mario S. Tongson and Eva Balediata (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine*, June 1972, v.11, no.1, p.24-30. tables. 9 refs.

The addition of 0.1% Thiabendazole in feed rations resulted in a generally lower larval recovery of *Toxocara canis* in experimentally infected rats than in the control, although the difference was statistically insignificant. *T. canis* larvae were recovered 2-3 wks post-infection. The heaviest larval concentration occurred in the liver and muscles.

MEDICAL SCIENCES

PHYSIOLOGY

612.118(=914)
Immunoglobulins - Analysis.

160. A comparative study of the immunoglobulins in maternal and fetal umbilical cord sera at term in Filipinos. Benigno F. Agbayani, Fernando Sanchez, Alendry P. Caviles, Jr., Lucela Cuasay and Rosalinda Serrano. *Philippine Journal of Pediatrics*, March-April 1972, v.21, no.2, p.57-62. graph, tables. 18 refs.

The normal values of the immunoglobulins (IgG, IgM and IgA) were determined in 43 samples of paired maternal and umbilical cord sera. Results showed a significant difference between maternal and fetal cord sera in the IgG class. IgA was found to be higher in maternal serum among Filipinos compared to that among Caucasians; IgM and IgG were practically the same. Fetal serum IgG was also found higher among Filipinos compared to that among Caucasians, with practically the same IgM values.

612.398:616.39(914)
Protein deficiency. Deficiency diseases.

161. What is the protein gap? Carmen Ll. Intengan (National Institute of Science & Technology, Manila). *Philippine Journal of Nutrition*, Jan.-March 1972, v.25, no.1, p.1-15. graphs, tables, diagr. 9 refs.

The foremost nutritional problem in the Philippines today is calorie-protein malnutrition, as indicated by underweight and poor physique and aggravated by the lack of total calories. Clinical manifestations are shown in young children by "kwashiorkor" disease characterized by edema of the legs and "moon face". The child's growth is stunted, fat is absent in body tissues, there is a poor muscle development and there is lower resistance to disease. Among adults, the most deficient are the lactating and pregnant mothers. The amount of food commodities needed to fill in the gap for human consumption/capita/yr are: meat and poultry (18.5 k); eggs (4.7 k); milk (32.9 k); fish and crustaceans (37.4 k); and beans (6 k).

612.6:578.08
Rats - Embryology.

162. Deleterious effects of orally administered tritiated Thymidine on field rats (R. r. mindanensis). Benjamin de la Cruz, Florencio Isagani Medina, Calixto Madriaga, Sofonia Eslit, Elsie Padrelanan, Victoria Paguirigan, Juana Gregorio and Librado Ibe. *Journal of the Philippine Medical Association,* June 1972, v.48, no.6, p.289-296. tables, illus. 4 refs.

The study was conducted on 14 male and female sexually mature field rats given oral doses of tritiated Thymidine ranging approximately from 125 µCi to 600 µCi. Results showed that some field rats treated with Thymidine failed to breed; those that bred produced progenies which have physical deformities, defective reproductive capacity and other abnormalities.

612.63:614.1
Intrauterine devices.

163. Intrauterine contraception: A ten-year study. Irma Reyes Apelo. *Journal of the Philippine Medical Association,* April 1972, v.48, no.4, p.191-196. tables, illus. 4 refs.

Experiences on the use of ring, loop and spiral intrauterine devices (IUD) mostly among the 30-34 yrs old group studied in 1959-1969 are discussed. IUD was used either to space children or to stop childbearing. The ring type was worn on the average for 36 mo., the loop, 27 mo. and spiral, 42 mo. The ring type was found to have a lower expulsion rate compared to the loop, although it gave a pregnancy rate higher than the loop. In most cases, discontinuance of the method was due to expulsion, accidental pregnancy and vaginal discharge.

612.66:612.39(=914)
Child development. Growth.

164. Effect of nutrition and illness on the growth and development of Filipino children (0-4 years) in a rural-setting. Virginia Balderrama-Guzman and Victor O. Tantengco (Institute of Public Health, University of the Philippines, Manila). *Journal of the Philippine Medical Association,* July 1971, v.47, no.7, p.323-336. graphs, tables. 12 refs.; *Philippine Journal of Nutrition,* April-June 1972, v.25, no.2, p.81-94.

A cross-sectional survey was done among 589 infants and preschool children in Victoria (Laguna). Results showed the prevalence of protein-calorie malnutrition, and vitamin A and B deficiencies. Biochemical findings showed abnormally low levels of hemoglobin in 51% and hypoproteinemia in 20%; deficient levels of serum folate were exhibited in 22-37% of older children. Based on weight data, second and third degree malnutrition were common in the 2-6 yrs old. It was noted that malnutrition was often aggravated by recurrence of infection.

FOOD AND DIETETICS

613.2:308
Food consumption. Nutrition surveys.

165. Studies on average sizes per serving of food items. Patrocinio E. de Guzman (National Institute of Science & Technology, Manila). *Philippine Journal of Nutrition,* Jan.-March 1972, v.25, no.1, p.17-30. tables. 4 refs.

The average size per serving and frequency of intakes of 73 food items were determined in the diets of 506 males and 533 females by age group (13-20 yrs and 21-39 yrs) and by sex. Results showed no significant differences in the amount of food consumed at a meal. No significant differences in the average serving portion sizes for fruits and meat in both age groups were observed. However, for vegetables, the 21-39 age group chose bigger portion sizes. The preference for bigger portions of rice and other carbohydrates was evident in the 13-20 age group. Males generally had bigger serving portion sizes than females of both age groups.

613.2:308
Nutrition surveys.

166. Survey on food preparation and common cooking practices in Bicol region. Nieves C. Rodriguez and Susan C. Roldan (National Institute of Science & Technology, Manila). *Philippine Journal of Nutrition,* Jan.-March 1972, v.25, no.1, p.31-41. graph, tables. 10 refs.

Relationships of food preparation, common cooking practices and sources of nutrition information scores to age, education, serum ascorbic acid and occupation of 246 subjects were studied. Education was significantly found to be the only variable related to score. On the basis of other categories, discontinuity of the mean scores showed no relation to cooking practice scores.

OCCUPATIONAL HYGIENE

613.62:616-099
Occupational diseases - Occurrence.
Lead poisoning.

167. A study of lead hazard in some lead processing industries. Francisco R. Jose. *Acta Medica Philippina,* ser.2, April-June 1972, v.8, no.2, p.48-54. tables. 5 refs.

The extent and intensity of lead hazard in battery, paint and lead oxide plants were evaluated based on the levels of lead in air, and the urinary lead, stippled red cell count and clinical manifestations of lead poisoning in exposed workers. Results showed that lead hazard in battery and lead oxide plants is greater than that in paint factories.

613.62:616.2-057
Occupational diseases - Occurrence.
Respiratory tract infections.

168. Respiratory diseases in cotton textile workers. Gamal H. El Samra, Natividad Solmera-Chipongian, Elda M. Montemayor and Francisco R. Jose. *Acta Medica Philippina,* ser.2, April-June 1972, v.8, no.2, p.55-60. tables. 21 refs.

Examination of 247 workers in a cotton mill revealed one case of byssinosis, seen in a 42-yr-old male cardroom worker. There were 3 cases with complaints of chest tightness and one case with chronic bronchitis complicated by bronchial asthma which could be related to exposure to cotton dust. The low incidence of the disease among the workers examined was attributed to the fact that the mill had been operating for only 13 yrs and that dust concentrations in all departments except one were below the maximum permissible level.

PUBLIC HEALTH

614.2(914)
Medical care plans.

169. The Medical Assistance Plan: participation of the private sector. Ulysses M. Carbajal. *Filipino Family Physician,* April-June 1972, v.10, no.2, p.55-57.

The Medical Assistance Plan, formed jointly by the private medical practitioners and the Philippine government through the Dept. of Health (Manila) to bridge together the phases of the Medical Care Program in the Philippines is discussed. The role of the private medical practitioners in the effective implementation of the health care program is emphasized.

614.25:613.943
Family planning.

170. The PMA Family Planning Project. Felino C. Palafox. *Journal of the Philippine Medical Association,* April 1972, v.48, no.4, p.185-190.

The Philippine Medical Association (PMA) project aimed to involve 300 private physicians in providing family planning services for the national population for the period July 1971-June 1972. Contraceptive supplies are to be given free of charge. As of Jan. 1972, a total of 211 clinics were opened in Luzon. Each physician under the project was expected to enrol at least 2 acceptors/wk. In Nov. 1970-Dec. 1971, a total of 28,085 acceptors were serviced by the PMA project. Some of the more commonly used methods of contraception are pills, rhythm, condom, IUD and foam tablets.

614.253
Physician-patient relations.

171. Rabies and the family physician in the Philippines. Primo V. Arambulo, III, Antonio Acosta and Salvador H. Escudero, III. *Filipino Family Physician,* April-June 1972, v.10, no.2, p.1-7. tables.

Rabies is an important public health problem in the Philippines, considering that an average of 300 cases mostly school children and adolescents die of rabies annually. Thus, the importance of diagnosis and the control of rabies in animals is emphasized. The family physician should take it upon himself to advise the family to have their dogs vaccinated against rabies.

614.7(914)
Air pollution. Water pollution.

172. The state of environmental pollution in the Philippines today. Reynaldo M. Lesaca (National Water and Air Pollution Control Commission, Mnaila). *Mining & Industrial Magazine,* May 1972, v.5, no.5, p.24-26, 28, 30. illus.

Surveys conducted by the National Water and Air Pollution Control Commission (NWAPCC) revealed that air pollution presently exists in urban areas and factory sites in the Philippines. 13 cement factories and 26 sugar centrals, among others, are contributing significantly to air pollution. In Metropolitan Manila, about 3200 tons of particulate matter were emitted by motor vehicles and 42,000 lb of SO_2 discharged/day by 67 factories sampled for smoke emission.

In the Greater Manila area, pollution of the rivers was traced to the sewage produced by the public and the factories and industrial firms. Textile mills were the heaviest polluters, followed by pulp and paper mills, food processing plants, chemical industries, steel processing and glass manufacturing plants. During the wet season, the rivers can carry the total pollution load discharged to it, but it can carry only less than half during dry season.

Efforts of the government and the ability of NWAPCC to enforce strictly the laws, rules and regulations are the key to a successful pollution control program.

PHARMACOLOGY

615.72:616.24(=914)
Tuberculosis - Drug therapy. Drug therapy - Adverse effects.

173. Untoward reactions and intolerance manifestations of Filipinos to common anti-microbial drugs (a three year study). Priscilla J. Tablan and Ernesto Maquiling (Quezon Institute, Quezon City). *Chest Diseases,* June 1972, v.8, no.2, p.29-38. tables. 10 refs.

Clinical experiences observed in over 2000 adult patients, weighing 75-85 lb and suffering from tuberculosis are briefly discussed. Some of the antimicrobial drugs tried in the cases were Isoniazid, para-aminosalycylic acid, Streptomycin, Ethambutol, Morphazinamide, Prothionamide, Thioacetazone, Farmiserina and Rifampicin. Results proved that Isoniazid and Ethambutol were the most acceptable antimicrobials against tuberculosis with tolerable and encouraging improvement among the patients.

615.779:576.852(914)
Antibiotics - Isolation & purification. Actinomycetes.

174. An antibiotic pigment from a Philippine soil actinomycete. Patrocinio Sevilla Santos. Manila, Faculty of Graduate School, University of Santo Tomas, 1972. 23*l*. 166p. graphs, plates, tables, illus. 93 refs. (Thesis. Doctor of Philosophy, Major in Chemistry)

A yellow-pigmented streptomycete SA-15 isolated from Philippine soil with a morphological anc cultural characteristics similar to that of *Streptomyces parvus* inhibited the growth of gram-positive bacteria and a saprophytic mycobacterium. In culture broth, SA-15 produces an antibiotic complex with at least 4 components, one of which is $(SA\text{-}15)_4$ isolated by adsorption and solvent extraction and purified by column chromatography and crystallization. $(SA\text{-}15)_4$ resembles the actinomycins in its physico-chemical and biological properties indicating it as an actinomycin-like antibiotic pigment.

DISEASES. PATHOLOGY

616-078
Blood - Analysis and chemistry.

175. A rapid assay method of serum B_{12} activity by the radioisotope dilution technique. Anita M. Marzan (National Institute of Science & Technology, Manila) and Victor O. Tantengco (Institute of Public Health, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, Jan.-March 1972, v.8, no.1, p.15-21. graphs, tables, illus. 5 refs.

The procedures in measuring serum vitamin B_{12} activity using the radioisotope dilution method are discussed. 44 paired sera were analyzed by the radioisotope dilution and microbiologic techniques. Results of the accuracy and reproducibility tests indicated the suitability of the isotope dilution method over the microbiologic assay technique in assessing vitamin B_{12} nutrition in our country.

616-099:613.28
Food poisoning. Clostridium perfringens.

176. An outbreak of Clostridium perfringens food poisoning in a household. Estela G. Famatiga and Nidia M. Manuson (Institute of Public Health, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, April-June 1972, v.8, no.2, p.45-47. 14 refs.

Epidemiological and bacteriological studies of 6 cases of food poisoning showed that the outbreak was due to *Clostridium perfringens.* The organism was isolated from stools of 6 cases and from raw slices of 2 fish species.

616.12:615.71
Angina pectoris - Drug therapy.

177. Clinical experiences with the use of beta-adrenergic blocker, LB 46 (Visken) in angina pectoris. Mariano M. Alimurung and Lilia C. Maranan (Faculty of Medicine and Surgery, University of Santo Tomas, Manila). *Santo Tomas Journal of Medicine,* May-June 1972, v.27, no.3, p.153-163. graph, tables, diagr. 12 refs.

Observations were made on 25 patients (mostly over 25 yrs old) with angina pectoris treated with LB 46 (Visken). Results indicated the clinical efficacy and safety of the drug even in small doses of as low as one mg twice a day. 72-88% of the cases had very good to satisfactory relief of anginal pain.

616.12-053.2:615.71
Heart failure, Congestive - Drug therapy.

178. The use of isosorbide dinitrate in cardiomyopathy in infants and children. Maria Z. Grajo and Rolando S. Songco (Faculty of Medicine and Surgery, University of Santo Tomas, Manila). *Santo Tomas Journal of Medicine,* May-June 1972, v.27. no.3, p.146-152. illus. 5 refs.

Isosorbide dinitrate was tried in 30 infants aged one wk-11 mo. The drug was indicated for any of the following conditions: left heart or myocardial involvement, angina-like symptoms, uncontrolled congestive heart failure, marked cardiomegaly, continued respiratory or feeding difficulties, or deterioration of a previously controlled cardiac condition. Good clinical response was observed in most of the patients. Vomiting was noted in infants given doses higher than 2.5 mg twice a day. It is felt that isosorbide dinitrate is useful in the treatment of infants with left heart involvement.

616.12-07
Coronary disease - Diagnosis.

179. Current diagnosis of coronary heart disease. Lourdes Lai Foo-Canto (UE-RM Memorial Medical Center, Quezon City). *Filipino Family Physician,* Jan.-March 1972, v.10, no.1, p.1-12. 48 refs.

Diagnosis of coronary heart disease is based on the signs and symptoms of past or present history of myocardial infarction or angina pectoris. Laboratory examinations and the pyruvate kinase determinations were found to be useful in the early diagnosis of acute myocardial infarction particularly in the differentiation of acute coronary insufficiency and other conditions like pulmonary embolism, liver diseases, arrhythmias, congestive heart failure, muscle diseases and cancer. However, the diagnosis can be problematic if complications of the disease occur.

616.12-074(=914)
Heart diseases - Diagnosis. Trace
elements - Analysis.

180. Statistical analysis of trace elements in heart tissues of Filipinos. Achilles del Callar and Jesus A. Feria (Philippine Atomic Research Center, Quezon City). Manila, Philippine Atomic Energy Commission, March 1972. 12p. tables. 25 refs. [PAEC (D) 724]

The positive correlation values at the 5% level of significance of trace elements found in normal and diseased heart tissues are given. It was concluded that the values, while significant, are of no use clinically unless similar correlations are found in body fluids of patients undergoing therapy for various cardiovascular ailments. The pairs of elements which tend to accumulate in heart tissues would possibly show correlated decreased levels in serum as compared to normal subjects.

616.13/.14:616-02/-03
Arteriovenous fistula - Etiology.
Arteriovenous fistula - Complications.

181. Arterio-venous fistulas: a review of cases seen in the Santo Tomas University Hospital. Helen H. Paulino-Abundo, Basilia Garcia-Gonzales and Benjamin A. Belmonte (Faculty of Medicine and Surgery, University of Santo Tomas, Manila). *Santo Tomas Journal of Medicine,* May-June 1972, v.27, no.3,p.164-172. table, illus. 7 refs.

The etiology, clinical features, diagnosis, complications and management of arterio-venous fistula are discussed based on 11 cases seen in 1958-1959. 8 cases were operated on and improved.

616.24-002.5:615.72
Tuberculosis in childhood - Drug therapy.

182. The efficacy of Rifampicin for the treatment of tuberculosis in children. A clinical, radiological, bacteriological and histopathological study. M. Pardo de Tavera and Glorioso V. Saturay (Quezon Institute, Quezon City). *Chest Diseases,* June 1972, v.8, no.2, p.8-28. graphs, tables, illus. 9 refs.

Rifampicin was tried in 19 children (aged 6 mo.-13 yrs) suffering from tuberculosis. The drug was given at doses of 22-25 mg/kg body weight. Results showed that Rifampicin monotherapy or Rifampicin combined with INH effectively treated tuberculosis and was found free from toxicity even at doses of 25 mg/kg body weight. Follow-up of the cases after discontinuation of Rifampicin from 6 mo. to one yr did not reveal any reactivation of the disease clinically, bacteriologically or roentgenographically. Histological examination showed a remarkable degree of improvement in the cases studied.

616.24-002.5:616-07
Tuberculin test. Blood sedimentation.

183. Tuberculin reaction and erythrocyte sedimentation rate in tuberculosis in children. Eleanor G. Hembrador, Rolando S. Songco and Rosalina Cancio-Gonzalez (UST Hospital, Manila). *Santo Tomas Journal of Medicine,* March-April 1972, v.27, no.2, p.100-107. graphs, tables. 10 refs.

Sixty tuberculous children were simultaneously tuberculin tested with purified protein derivative (RT-23) and examined for their erythrocyte sedimentation rate to determine if the changes in the tuberculin reaction and erythrocyte sedimentation rate can be correlated and used as criteria of the activity of the infection. All the children were found to be tuberculin positive and have elevated sedimentation rates. The sedimentation rate was not proportionate to the size of the tuberculin reaction, indicating that tuberculin test can neither be used as an index of progression nor regression of the disease. However, both procedures help determine clinical activity in tuberculosis.

616.24-007
Emphysema.

184. Congenital lobar emphysema. Edelmiro T. Santos (FEU Hospital, Manila). *Philippine Journal of Pediatrics,* May-June 1972, v.21, no.3, p.107-111. illus. 11 refs.

A case of congenital lobar emphysema in a male newborn is reported. The patient recovered without any intervention.

616.24-007
Lung - Abnormalities.

185. A case of pulmonary agenesis. Fernando L. Capulong (FEU Hospital, Manila). *Philippine Journal of Pediatrics,* May-June 1972, v.21, no.3, p.112-118. illus. 19 refs.

A case of agenesis of the right lung in an 8-mo.-old female seen for the first time in the FEU Hospital is reported. Hypoplasia of the right radius and deformed ulna was noted as the only demonstrable associated anomaly. No definite treatment was attempted; measures taken were prevention and treatment of the repeated occurrence of respiratory infections.

616.36-006:616-078(=914)
Hepatoma - Diagnosis.

186. Relative levels of alpha fetoprotein in confirmed hepatomas among Filipinos. Antonio S. Racela, Jr., Flora M. Pascasio and Sol Alvarez. *Journal of the Philippine Medical Association,* June 1972, v.48, no.6, p.314-320. table, illus. 25 refs.

Of 20 proven cases of hepatoma, 50% were observed positive for alpha fetoprotein (AFP), the levels varying from 1:8 to 1:256 dilution. Sex and age had no significant effect on the levels of AFP.

616.36-03
Liver abscess, Amebic - Diagnosis.

187. Amoebic abscess of the liver, as seen at the Santo Tomas University Hospital Clinical Division, 1966-1970. Jesus Y. Perez, Jr., Bienvenido Alora, Juan Torres, Jr., Adoracion Nambayan, Isabel Feliciano-Siapno and Augusto J. Ramos (Faculty of Medicine and Surgery, University of Santo Tomas, Manila). *Santo Tomas Journal of Medicine,* March-April 1972, v.27, no.2, p.57-64. tables. 12 refs.

The epidemiological and clinical features, diagnostic procedures and therapeutic approaches observed in 52 cases of amoebic liver abscess are discussed. Majority of the cases were males and were in their 3rd and 5th decades of life. A high incidence of fever and tender hepatomegaly was noted clinically, in contrast to the high incidence of jaundice reported elsewhere. The elevations of serum globulin and alkaline phosphatase were found to be more constant than any other liver function tests. Serum transaminase levels were often below 100 units, although a few showed elevations simulating those seen in viral hepatitis. Results of various treatments tend to favor recent trends toward medical conversatism. No mortality or complications developed, and hospital stay was shortened.

616.379-053.1:612.015 616-008-053.1
Diabetes mellitus, Juvenile - Metabolism.

188. Metabolic changes in infants of diabetic mothers. Luz M. Abad Santos and Cosme R. Cagas. *Philippine Journal of Pediatrics,* May-June 1972, v.21, no.3, p.131-141. 60 refs.

The infant of diabetic mother (IDM) is overgrown in most cases resulting from intrauterine metabolic aberrations, cushingoid, flabby and fat in appearance and the development and body functions are more related to the gestational age than the size. Diabetics with vascular disease or long standing diabetes are more likely to have small infants. The rate of fetal growth is inversely proportional to the duration of diabetes in the mother. Special care, therefore, should be given to IDM including the serial determination of blood sugar and calcium levels from birth. However, in spite of progress in pediatric care, incidence of neonatal death is still 10-20% above that of normal.

The changes in the body composition of IDM are briefly discussed.

616.4-07(=914)
Cushing's syndrome - Diagnosis.

189. Cushing's syndrome versus obesity: A problem in diagnosis. Imelda Bernardo, Cosme R. Cagas, Jose Manaligod, Gabriel Carreon, Roman S. Ibay, Jr., and Rosa N. Macali. *Proceedings of the Philippine Society of Endocrinology and Metabolism,* 1972, no.4, p.7-13. graphs, illus. 8 refs.; *Acta Medica Philippina,* ser.2, April-June 1972, v.8, no.2, p.65-70.

A probable case of Cushing's syndrome in an 8-yr-old Filipino boy seen at the Philippine General Hospital (Manila) is reported. The diagnosis remained indefinitely resolved on clinical grounds by tests of hypothalamo-pituitary-adrenal function and even on examination of biopsy specimens obtained through laparotomy. The adrenal biopsy could not be interpreted as definite hyperplasia.

616.44-056.7
Goiter - Familial & genetic.

190. Pendred's syndrome. Winston San Agustin, Rolando Abada, George Eufemio and Flora M. Pascasio. *Proceedings of the Philippine Society of Endocrinology and Metabolism,* 1972, no. 4, p.1-6. table, illus. 7 refs.

The first local case of Pendred's syndrome seen in a 24-yr-old male is reported. Thyroid function tests of the family revealed that 3 males out of a sibship of 5 males and one female were affected. The apparently normal members of the family showed alterations in the thyroid function tests. The possibility of an autosomal recessive mode of inheritance is very likely in the family.

616.832.9:616.98-03
Meningococcal infections - Complications.
Meningococcal infections - Drug therapy.

191. Meningococcal infection: prognostication and therapy. Carmencita B. Lara and Imelda C. Bernardo. *Philippine Journal of Pediatrics,* March-April 1972, v.21, no.2, p.63-78. graphs, tables. 23 refs.

A total of 45 cases of meningococcal infection seen in 1960-1970 are discussed and evaluated. Based on the clinical and laboratory features, the following suggest poor prognosis: 1) marked pyrexia; 2) appearance of rashes 12 hrs from the onset of symptoms; 3) shock; and 4) absence of meningitis or the finding of mild pleocytosis in the presence of meningitis. Normal or low leukocyte count and normal or low erythrocyte sedimentation rate as reported elsewhere are considered essential features and which can be applied to Filipino patients.

Recent therapeutic approaches have resulted in survival of cases with grave prognosis. The use of penicillin as the only antibiotic agent is recommended. Steroids must be employed cautiously if these should be in the management of fulminant meningococcemia. The application of unconventional therapies is to be considered in patients with grave prognoses.

616.895.8:615.78
Schizoprenia - Drug therapy.

192. Experiences with biologic psychiatry. Bun Tee Co, Jr. and Gilberto L. Gamez (UST Hospital, Manila). *Santo Tomas Journal of Medicine,* March-April 1972, v.27, no.2, p.82-99. tables, illus. 70 refs.

Two hundred schizophrenic patients were studied based on an original local model of treatment using Perphenazine as the specific drug. Combination with a sedative-tranquilizer and/or an antidepressant was based on specific target symptoms. Results showed a definite dose relation with reduction and disappearance of specific target symptoms. Follow-up of the cases showed that psychotic manifestations occurred after discontinuance of medications and disappeared again after the resumption of optimum dosage. This drug-symptom relationship suggests the validity of biologic techniques in the treatment of schizophrenias.

616.899-053.2:615.851(=914)
Mental retardation - Rehabilitation.
Occupational therapy.

193. Music therapy at St. Joseph of Cupertino School: a report. Fernando P. Hofileña (St. Joseph of Cupertino School, Quezon City). *Philippine Journal of Pediatrics,* March-April 1972, v.21, no.2, p.84-86.

The apparent success of the musical stage play as an adjunct in the training and management of the mental retardate and, to some extent the emotionally disturbed, among Filipino children is discussed. Among important observations are: development of self-confidence, diligence and poise, greater control of overactivity and enhancing of expression. Creative interaction program has also been initiated and among salient features of the retardates' behavior in this gathering are their friendliness, hospitality, outgoingness, and lack of self-conciousness and embarrassment. Recently, sessions in non-verbal communication have proven to be recreational and educative. Choral singing as well as group instrumental playing improved the students' self-discipline and group spirit, and afforded them a sense of achievement.

616.927-06
Typhoid - Complications. Typhoid - Occurrence.

194. Typhoid fever at the Santo Tomas University Hospital Clinical Division. Jesus Y. Perez, Jr. and Jaimes Tan. *Santo Tomas Journal of Medicine,* May-June 1972, v.27, no.3, p.139-145. tables. 5 refs.

The common clinical features of typhoid fever in 32 cases (mostly in their 2nd and 3rd decades of life) seen in Jan. 1971-May 1972 are briefly discussed. Jaundice was observed in 50% of the cases and intestinal bleeding requiring blood transfusion was indicated in 21%. No mortality was encountered in the series. The best antimicrobial agents administered were Chloramphenicol, Ampicillin, Sulfamethoxazole-Trimethoprim and steroids.

616.94-053.1
Infant, Newborn, Diseases.

195. Advances in neonatal infections. Milagros R. Cabildo-Liwanag, Antonio Gonzaga and Cosme R. Cagas. *Philippine Journal of Pediatrics,* May-June 1972, v.21, no.3, p.119-130. tables. 33 refs.

Thirty-seven cases of neonatal sepsis were admitted at the UP-PGH Medical Center (Manila). The most common signs encountered were poor sucking, diarrhea, dehydration, fever and vomiting. Culture and sensitivity tests were done to identify the organisms present. Tests showed that infections were remarkably reduced due to the use of modern procedures coupled with the use of antibiotics for a specified organism.

The etiology, immunology, diagnostic and clinical manifestations of the disease, its management and the drugs to avoid are briefly discussed.

616.982.1(914)
Actinomycosis.

196. Pulmonary actinomycosis in the Philippines. Romeo D. Zamora (Quezon Institute, Quezon City). *Chest Diseases,* June 1972, v.8, no.2, p.4-7. illus.

A case of pulmonary actinomycosis in a 53-yr-old male is reported for the first time in the Philippines. The symptoms observed were cough, fever and persistent hemoptysis. Sputum and bronchial aspirate examinations showed negative results, but blood streaking progressed despite coagulant therapy. Surgery was performed due to continuous blood streaking. Results showed a fungus infection of the lungs. The section of the lymph nodes showed anthracotic pigments and hyperplasia of reticulo-endothelial cells. The postoperative course was successful and without recurrence of bleeding.

616.988.7(914)
Dengue - Occurrence.

197. The Greater Manila dengue hemorrhagic fever epidemic of 1966. E. L. Venzon, A. Rudnick, N. J. Marchette, A. E. Fabie and E. Dukellis. *Journal of the Philippine Medical Association,* June 1972, v.48, no.6, p.297-313. tables. 28 refs.

Of 408 clinically diagnosed cases of hemorrhagic fever, 217 were confirmed dengue infections, and 54 strains of dengue virus of 3 types were recovered. The disease affected mostly children aged 5-14 yrs, but adults were also significantly involved. The epidemic which was caused by dengue type 3 virus extended from May to Oct., occurring largely in central-urban and outer-urban with few cases in rural areas. All cases of hemorrhagic fever with shock except possibly 2 had secondary antibody responses, but no other correlation of antibody response to severity of disease could be made.

OPHTHALMOLOGY

617.73:616-089
Eye diseases - Surgery.

198. Scleral transposition and scleral implantation. Alberto J. de Leon and Jesus S. Eusebio, Sr. (Faculty of Medicine and Surgery, Univeristy of Santo Tomas, Manila). *Santo Tomas Journal of Medicine,* March-April 1972, v.27, no. 2, p.65-81. illus. 4 refs.

Ninety patients aged 12-78 yrs, with complaints of visual impairment due to diseases of the retina and/or of the optic nerve were operated on at the Outpatient Dept. of the UST Hospital (Manila). The methods used in the treatment of the disease were transposition and implantation. Results showed that 35-40% of the patients improved. No.complications were observed among the cases. However, these who did not improve their vision stayed as it was before the operation.

GYNECOLOGY. OBSTETRICS

618.15:616-007
Vagina - Abnormalities.
Vagina - Surgery.

199. **Congenital malformations in obstetrics and gynecology with emphasis on the surgical treatment of vaginal agenesia.** Carmen L. Enverga-Santos (Faculty of Medicine and Surgery, University of Santo Tomas, Manila). *Philippine Journal of Surgical Specialties,* Jan.-March 1972, v.27, no.1, p.29-37. tables, illus. 2 refs.

Two female cases, aged 23 and 24 yrs old, with complete uterine and vaginal agenesia, are presented. The surgical treatment of vaginal aplasia was done with the use of a rubber obturator and full skin thickness for epithelialization. Both cases yielded satisfactory results as regards coitus, although the first case was advised to report for better coital adjustment.

The congenital malformations and its symptoms are given.

618.3:616-07
Pregnancy complications - Diagnosis.

200. **Postpartum fever, dyspnea and chest pains.** *Acta Medica Philippina,* ser.2, Jan.-March 1972, v.8, no.1, p.36-42, 35.

A 29-yr-old patient was admitted on her 37th wk of pregnancy for labor pains and delivered an Apgar 6, 1771 gm baby girl by outlet forceps after 5 hrs of labor. She was diagnosed as having mild pre-eclampsia. On the 2nd day postpartum, she had chest pain, dyspnea and fever. Clinical findings showed pulmonary embolism, infected episiotomy wound with endometritis and hypothyroidism. Blood transfusion reaction was found to be the cause of death of the patient.

VETERINARY MEDICINE

619:616-007:636.74 636.74.089
Aorta - Abnormalities and deformities-
Dogs.

201. **Persistent right aortic arch in a German Shepherd pup.** Alfredo Q. Lacuata and Joseph S. Masangkay (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June 1972, v.11, no.1, p.129-132. plates. 6 refs.

A case of persistent right aortic arch (PRAA) in a 2-mo.-old German Shepherd dog is reported. Postmortem findings revealed the dilated cervical part of the esophagus caused by the ring formed by the PRAA on the right side.

619:616-089.5:636.7
Veterinary anesthesia.

202. **A preliminary study on the effects of Rompun as a sedative in dogs.** Alfredo Q. Lacuata and Rodolfo S. Savellano (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June 1972, v.11, no.1, p.116-125. tables. 17 refs.

Experiments with 50 dogs of different breeds, 2.5 mo.-3 yrs old, showed that at a dose of 0.03 cc/kg body weight, Rompun given intramuscularly had a very satisfactory sedative effect. The sedative effect set in about 6-11 min after intramuscular injection and lasted for about 25-45 min. A dose of 0.02 cc/kg body weight intravenously proved to have good to excellent sedation with onset within 30 sec-one min after injection, and lasting for 21-27 min.

619:616.34:636.28(914)
Cattle - Diseases and pests.
Paratuberculosis - Veterinary.

203. **Histopathologic evidence of Bovine paratuberculosis (Johne's disease) in the Philippines.** Meliton N. Novilla (College of Veterinary Medicine, University of the Philippines, Quezon City.) *Philippine Journal of Veterinary Medicine,* June 1972, v.11, no.1, p.19-23. plates. 12 refs.

The diagnosis of paratuberculosis in a herd of Indian Zebu cattle from Mindanao is reported. The disease was suspected due to prolonged intractable diarrhea which did not respond to treatment. Histopathologic and bacteriologic examinations of specimens stained by the Ziehl-Nielsen acid fast technique revealed acid fast bacilli typical of *Mycobacterium paratuberculosis.*

619:616.981.42-097:636.12 636.12.089
Horses - Diseases and pests.
Brucella abortus - Immunology.

204. **A serological survey for Brucella abortus antibodies in imported and native horses using the rapid plate agglutination test.** Meliton N. Novilla, Jeffrey B. Nesse and Alfredo B. Sese (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June 1972, v.11, no.

1, p.1-9. tables. 11 refs.

Results of tests made on 505 horses indicated the presence and possible high incidence of equine brucellosis in the Philippines. Of 505 horses, 174 were found to be positive reactors, and 67 could be considered having an active or recently terminated infection.

619:616.981.49:636.5
Salmonellosis - Poultry.

205. **Salmonella in market poultry and poultry dressing plant environments in the Philippines.** J. V. Tacal, Jr., Cydippe F. Meñez and Jovenia A. Soriano (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June 1972, v.11, no.1, p.10-18. table. 13 refs.

Examination of pooled intestines and ceca of apparently healthy slaughter chickens, and environmental swabs from 2 poultry dressing plants revealed the presence of *Salmonella* infection. *S. infantis, S. thompson* and *S. singapore* were isolated for the first time from any source in the Philippines. Some birds were also positive for Providencia groups.

619:616.981.51-02 616.981.51-02
Anthrax - Occurrence.

206. **Some observations on a field outbreak of anthrax in Quezon Province.** Felixberto P. Fabella and Pascual F. Noscal (Lopez, Quezon). *Philippine Journal of Veterinary Medicine,* June 1972, v.11, no.1, p.110-115. 6 refs.

A recent outbreak of anthrax among cattle, carabaos, horses and humans in Lopez is reported. The outbreak of the disease was traced as due to a horse that came from another town where the disease was known to exist. Organisms found were identified as *B. anthracis* of the peracute type. The rapid spread of the disease was due to infected meat and tabanid flies. Affected persons developed skin eruptions and carbuncles, while the animals that died had blood oozing out of body openings. Diagnosis was based on clinical manifestations and laboratory findings. Strict quarantine and preventive measures successfully eradicated the disease.

619:616.993:636.293(914)
636.293.089(914)
Carabaos - Diseases and pests.
Sarcosporidiosis - Veterinary.

207. **Sarcosporidiosis in Philippine carabaos.** Primo V. Arambulo, III and Mario S. Tongson (College of Veterinary Medicine, University of the Philippines, Quezon City) and Rustica V. Sarmiento (Veterinary Inspection Board, Manila). *Philippine Journal of Veterinary Medicine,* June 1972, v.11, no.1, p.53-59. plates. 11 refs.

Of 1148 carabao carcasses examined on postmortem inspection, 47 were found positive for sarcosporidiosis. The morphology of *Sarcocystis* from Philippine carabaos conforms in general with descriptions in literature; the size differed markedly with other species described in animals including that described earlier locally in the same host. The parasite caused no gross or histopathologic changes except for displacement of sarcolemma by the large cysts.

619:616.993:636.5 636.5.089:615.778
Poultry coccidiosis - Therapy.

208. **Evaluation of Cycostat and Amprol plus with or without Payzone in broilers raised on deep litter.** Mauro F. Manuel and Jose V. Dayao (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June 1972, v.11, no. 1, p.31-52. tables. 59 refs.

Experiments made on 8640 one-day-old sexed Hubbard broiler chicks showed that Amprol plus and Cycostat at recommended levels are effective in controlling mortality due to coccidiosis in broiler chicks raised on deep litter. Cycostat at 66 ppm given continuously in the ration completely suppressed oocyst production. No significant difference in liveweight gain and feed conversion was noted in birds raised on both coccidiostats, although birds given Cycostat had slightly better feed efficiency than those given Amprol plus-supplemented ration. In the absence of clinical coccidiosis, both coccidiostats had no effect on the growth rate and feed conversion of broiler chicks. In general, the addition of Payzone-Nitrovin exerted a significant effect on the feed efficiency of broiler chicks.

619:616.993:636.7(914) 636.7.089(914)
Dogs - Diseases and pests.
Babesiasis - Veterinary.

209. **Babesia canis: clinical observations in dogs in the Philippines.** Enrique T. Carlos, Enrique R. Carlos, Filipina T. Calalay and Corazon C. Cabiles. *Philippine Journal of Veterinary Medicine,* June 1972, v.11, no.1, p.81-91. tables. 10 refs.

Observations were made on 28 dogs of different breeds found positive for *Babesia canis.*

In general, the cases were of the chronic type, and in many, the clinical signs were very mild. The common clinical signs observed were pyrexia, anorexia and lethargy in varying degrees of severity. A typical symptoms were observed in a few cases; the most interesting was epileptiform seizures in a Basset Hound.

619:616.988-097:636.2+636.3
619:616.988-097:636.596
Mammals - Diseases and pests.
Birds - Diseases and pests.

210. Chlamydial studies in the Philippines. I. Preliminary report on the occurrence of complement-fixing antibodies in one avian and two mammalian species. Meliton N. Novilla and Elizabeth B. Brana (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June 1972, v.11, no.1, p.133-137. table. 9 refs.

Sera collected from 5 mammalian and 8 avian species were subjected to direct complement fixation (DCF) tests. Complement-fixing antibodies were found in 2 of 39 sheep, 3 of 32 cattle and one of 10 pigeons. Serum samples from other species including that of man were negative in the DCF tests. These findings indicate a possible wider host range of chlamydial infection in the Philippines.

619:636.1:617.7-089 636.1.089
Eye - Diseases and defects - Horses.
Eye diseases - Veterinary.

211. Paracentesis of the equine eye. Irvin E. Herling and Alfredo B. Sese. *Philippine Journal of Veterinary Medicine,* June 1972, v.11, no.1, p.126-128. plates. 6 refs.

A simple surgical procedure for performing paracentesis oculi in the equine is described. This technique was applied with success in cases of descemetocele, anterior uveitis and ocular setariasis in horses with minimal scar formation, except in one case of ocular setariasis, where an iris prolapse occurred due to excessive instrumentation.

ENGINEERING

621-81:631.362 631.362:633.18
Steam, Heating-industrial. Grain driers.

212. Geothermal energy for grain drying. Medardo C. Tan Cardoso (Commission on Volcanology, Quezon City). [Manila, 1972]. 7p. 1ℓ. Mimeographed. (Paper read at the Symposium on Utilization of Geothermal Energy, July 13, 1972, Manila)

A rotary kiln-type grain dryer using natural steam to generate heat was evolved. Experiments with a model, 6 in. in dia. and 10 ft long, showed that drying of palay was reduced to 10 min as compared to 5-8 hrs by solar drying. The dryer has a capacity of 48 cavans palay in a day's operation.

621.54
Pneumatic control.

213. Atlas Copco introduces pneumatic barriers against the spread of oil on water. *Philippine Mining and Engineering Journal,* June 1972, v.2, no.6, p.2, 4, 6, 8, 26-29. graphs, illus.

An account of the experimental investigations carried out in full-scale to determine the functioning of a pneumatic barrier under the simultaneous effects of wind, waves and current is discussed in detail. The results are in agreement with those obtained in the tests with models and support the theories which are herein presented. The pneumatic barrier is a very advantageous solution for protection of oil discharge in harbours, docks, canals, recreational areas, oyster beds, water inlets, marines and bathing beaches.

622.1:622.348(914)
Mineral exploration.

214. Exploration of nickel-sulfide deposits in the Philippines. Ernesto P. Sonido [McPhar Geoservices (Phils.) Inc., Manila]. *Mineral Engineering Magazine,* May-June 1972, v.23, no.5, p.19-24, 67. tables. 4 refs.

A systematic, economical and adaptable approach to exploration in a tropical environment such as in the Philippines is discussed. The exploration program adapted is based on experiences with exploration mainly of the nickel-sulfide type.

622.34.001.2
Ore deposits. Statistical methods.

215. Ore reserves - methods of calculations at Atlas Mining. Dominador C. Uy (Atlas Consolidated Mining and Development Corp., Toledo City). Manila, 1971. 3ℓ. 9p. 2ℓ. illus. Mimeographed. (Paper presented at the 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference, Nov. 29-30, 1971, (Manila); *Philippine Mining Record,* July 1972 v.6, no.8, p.10, 12, 14.

The method of calculating the geological or overall ore reserve is discussed. The basic data are mainly that of the assays and logs of diamond drill core. Using the end-area and the prismoidal formulas, the tonnage and grade from each section are computed for both positive and probable ore. Possible ore is not included in the computations. The method has been proven to be accurate in the 7-yr operation of the mine; however, it is tedious as it is manually done. Studies are underway to computerize ore reserve calculations using IBM 1130 computer.

622.343:622.233
Mines and mining - Open pit.

216. ACMDC open pit mining. R. C. Ballesteros (Atlas Consolidated Mining & Development Corp., Toledo City). *Mineral Engineering Magazine*, May-June 1972, v.23, no.5, p.11-18, 67. (Paper presented at the 3rd Symposium on Mineral Resources Development and 18th Mine Safety Conference, Nov. 29-30, 1971, Manila)

The recent expansions undertaken involving large scale open pit mining operations in the Greater Biga and Frank Pits copper mines of the Atlas Consolidated Mining Development Corp. are described in detail.

622.87
Mines and mining - Accident prevention.

217. Mine rescue organization procedures and survival techniques. Lorico F. Espejo (Benguet Consolidated, Inc., Makati, Rizal). *Philippine Mining Record*, Feb. 1972, v.6, no.3, p.20-27; *Mineral Engineering Magazine*, March-April 1972, v.23, no.4, p.27-43, 54. charts. 5 refs.

Some practical methods and technological capabilities which can be applied to improve workers' chances of survival following a disaster are discussed. 3 life support systems for the proposed mine rescue are required, namely a portable lightweight individual emergency breathing device, a life support system for 15 men up to 2 wks for a small refuge chamber and a self-contained breathing apparatus for rescue team use.

628.515
Tailings.

218 The Marcopper tailings disposal system. John E. Dodge (Marcopper Mining Corp., Tapian, Sta. Cruz, Marinduque). *Philippine Mining Record*, March 1972, v.6, no.4, p.19-21. illus.

The factors considered for the choice of the disposal pond, dam design and operating methods of the Marcopper tailings disposal system are discussed. The tailings impoundment area is located 2 km from the concentrator and at approximately the same elevation. Tailings are pumped at flotation density through 6000 ft of 24 in. dia. by 1/4 in. thick steel pipe across the valley below the concentrator to the booster pump station near the tailings pond. From the booster pump station, the tailings may be pumped through either the north side of the impoundment area or the south side.

AGRICULTURE AND FORESTRY

631.42
Soil pesticides.

219. A study on the effect of pesticides (2, 4-D Ester, Agroxone 4, and Malathion) on the phosphorus, potassium, calcium and total nitrogen levels in Novaliches clay loam. Billy T. Vicario (Araneta University Foundation, Malabon, Rizal). *Araneta Research Journal*, April-June 1972, v.19, no.2, p.103-114. graphs, tables. 7 refs.

Results of the soil analyses showed that 2, 4-D Ester, Agroxone 4 and Malathion generally affect the availability of phosphorus, potassium, calcium and total nitrogen of the soil. However, these pesticides have no effect on the pH of the soil.

631.585:633.61 633.61:631.552
Companion crops. Sugar cane - Yield.

220. Intercropping ups farm income. Cipriano F. Biglete. *Sugarcane Farmers Bulletin*, May-June 1972, v.6, no.6, p.7-8.

Experiments conducted at the Philippine Sugar Institute, College (Laguna) revealed that intercropping sugarcane with mongo and peanut augmented farm income and produced higher yield due to constant weeding and cultivation as well as soil fertility caused by nitrogen-forming bacteria found on legume roots. Cowpea and bush sitao were found impractical as intercrops because of their susceptibility to wooly aphids and extensive cultural requirements. Method of planting intercrops are briefly discussed.

631.92
Soil conservation - Farm practices.

221. Soil and water conservation through the improvement of soil cover. Pedro N. Laudencia (National Science Development Board, Bicutan, Taguig, Rizal). *Philippine Geographical Journal*, April-June 1972, v.16, no.2, p.42-52. map, table. 11 refs.

Studies on the improvement of soil cover to minimize flood and sedimentation, and to conserve soil and water are discussed. The studies include researches on planting of cover crops, pasture improvement and selection of fast-growing reforestation tree species. In coconut and citrus plantations where animal grazing is not intended, *Calopogonium* as cover crop is recommended. For pasture improvement, grass-legume culture is recommended; the recently introduced African star grass was found very resistant to drought and is productive. The most significant finding in reforestation researches is the selection and identification of fast-growing tree species which are also utilizable for pulp and paper manufacture, namely: moluccan-sau (*Albizzia falcata*), kaatoan bangkal (*Anthocephalus chinensis*), yemane (*Gmelina arborea*) and umbrella tree (*Musanga cecropioides*).

632.951:595.77:636.5
Insecticides - Biological effect.

222. Insecticides for controlling poultry flies. Jaime Abella Sison (Bureau of Animal Industry, Manila). *BAI Recorder*, April-June 1972, v.31, no.4, p.11-13, 28. illus.

Some of the measures in controlling poultry flies particularly the common housefly (*Musca domestica*) and the unrecognized stable fly (*Stomoxys calcitrans*) are good sanitation practices and the use of proper insecticides for adult flies and larvicides for maggots. Among the insecticides used in the effective control of adult flies are the surface spray, poison baits, dry baits and liquid baits materials. The maggot control materials are also given. Although insecticides are useful and economical in the control of flies, they should be used with care and caution because they are poisonous.

633:582.998:631.52
Sunflowers - Experiments, Field.
Sunflowers - Varieties.

223. Sunflower production and breeding under tropical condition. Filomena F. Campos, Clarito Dacunos and Alfredo Orpiano. *CLSU Scientific Journal*, Jan.-June 1972, v.8, no.1, p.5-9. table.

The performance of Peredovik, HO-1, Krasnodarets and Armaveric under the distinct dry and wet seasons in conjunction with the isolation of phenotypes suitable under such conditions was studied. Results showed that irrespective of varieties significant difference exists between the crops grown under the dry and wet seasons. Days to flowering, plant height, maturity, seed yield and oil content were markedly significant in the wet than in the dry season crop. The agronomic performance of the varieties tested is relatively comparable with that from the countries where they originated. Hence, sunflower production in the Philippines is feasible except for some very specific cultural management methods.

Several desirable phenotypes were isolated for breeding purposes. Among the agronomic characters considered in the selection were: earliness, plant height, diameter and shape of head, non-photoperiod response, seed yield, yield and quality of oil, and resistance to major pests and diseases.

633:582.998:631.52
Sunflowers - Experiments, Field.
Sunflowers - Varieties.

224. Trial planting of different varieties of sunflower under Central Luzon State University condition. Filomena F. Campos, Clarito Dacumos and Alfredo Opiano. *CLSU Scientific Journal*, Jan.-June 1972, v.8, no.1, p.1-4. table.

Statistical analysis of the data showed highly significant results among the varieties tested. Based on the over-all agronomic performance, as well as the oil qualifications, Krasnodarets, Armaveric (both Philippine selection) and Vniimk varieties appear promising. Although Apollo ranks high in terms of seed yield and oil content, it is not being considered as a variety per se because it is of the tall type; however, it was selected as one of the genetic stocks for breeding.

633:582.998:631.543
Sunflowers - Experiments, Field.
Sunflowers - Yield.

225. Variation in response to planting density in sunflower. H. I. Oka, F. F. Campos and M. Cinense (Central Luzon State University, Muñoz, Nueva Ecija), *CLSU Scientific Journal*, Jan.-June 1972, v.8, no.1, p.10-17. tables. 5 refs.

Ten varieties tested at 4 different planting densities generally responded to close spacing by reducing their height and organ size, but differed significantly in the magnitude of their responses. Plasticity in head diameter and the number of days to halfsize time are correlated and also, the plasticity in 100 seed weight with stability in maximum growth rates, thereby indicating significant varietal differences in the mode of developmental plasticity.

633:582.998:631.552
Sunflowers - Experiments, Field.
Sunflowers - Yield.

226. Sunflower production as influenced by varying levels of fertilizer and plant population. Surasak Pasatayangkul and Filomena F. Campos (Central Luzon State University, Muñoz, Nueva Ecija). *CLSU Scientific Journal,* Jan.-June 1972, v.8. no.1, p.18-24. tables. 18 refs.

Results of the study conducted at Central Luzon State University using Krasnodarets and Armaveric varieties revealed that yields were relatively increased with increasing levels of fertilizers. The interaction between distance and levels of fertilizer were significant on dia. of head. The distance of 15 cm between hills exhibited significantly better growth increment, weight of seed/plot, and better oil content, both on actual and dry basis, than the 30 cm distance. At lower population rate, head size increased correspondingly with considerable increase in the weight of seed.

633:582.998:631.67
Sunflowers - Yield.

227. Irrigation management for sunflower production. Florentino C. Baniqued, Candida V. Onera and Rodolfo C. Undan (Central Luzon State University, Muñoz, Nueva Ecija). *CLSU Scientific Journal,* Jan.-June 1972, v.8, no.1, p.29-34. tables. 7 refs.

Studies were conducted to determine the water requirement and the optimum soil moisture level under local conditions so as to attain maximum sunflower production. Results showed that the seasonal consumption from seedling to harvesting, for a period of 84 days was 480.2 mm; the mean daily consumption and average maximum daily consumption during the bud formation to flowering stage was 5.7 and 7.8 mm, respectively. The best performance of the timing irrigation was obtained between 60 and 75% soil moisture. The crop responds well on moist soil.

633:582.998:632.7
Sunflowers - Diseases and pests.

228. Insect pests of sunflower and their seasonal occurrence in the Central Luzon State University. Abdullah Al-Azawi, Martin Guantes and Lilian Lopez (Central Luzon State University, Muñoz, Nueva Ecija). *CLSU Scientific Journal,* Jan.-June 1972, v.8, no.1, p.25-28. table. 1 ref.

Several insect pests observed on the 1971-1972 dry season crop of sunflower showed differences in the extent of damage they caused to plant in time of their appearance, and in abundance during the development of the plants. The most destructive species that attacked the leaves were the katydid (*Phaneroptera furcifera*); cutworms (*Chrysideixis chalcites*); tussock moths (*Orygia postica*) and *Euproctis innotata*; cotton leafworm (*Spodoptera litura*); and leaf folder (*Hamona* sp.). Sucking insects were also prevalent, the most common and numerous were leafhoppers. Among the most damaging pests of the inflorescence was the cotton bollworm (*Helicoverpa armigera*) and corn stemborer *(Ostrinia damoalis)*.

633.11:631.552:631.8
Wheat - Varieties. Wheat - Yield.

229. Preliminary report on the performance test of outstanding introduced wheat varieties as influenced by different levels of fertilizer application. Jose M. Manglicmot, Adriano M. Salisi and Pablo R. Casayuran (Bureau of Plant Industry, Manila). *Philippine Journal of Plant Industry,* First-Second Quarter 1972, v.37, nos. 1-2, p.15-24. tables. 4 refs.

The different levels of fertilizer application significantly influenced the yield performance of the 10 tested wheat varieties. NP 718 and NP 798 ranked first with the yields of 32.42 and 32 cavans/ha., respectively, while Florence Aurore gave the lowest yield of 25.68 cavans/ha. No apparent influence was noted on the panicle initiation, maturity periods and height of treated plants. The results favor the treatment of 90-60-60-kg/ha. and may be recommended for general use.

633.11:632.4
Wheat root rots.

230. Wilt or root rot of wheat due to Sclerotium rolfsii Sacc. Chunumpai Kulchaleewan and Martin S. Celino (Araneta University Foundation, Malabon, Rizal). *Araneta Research Journal,* Jan.-March 1972, v.19, no.1, p.25-40. tables, illus. 21 refs.

Root rot of wheat caused by *Sclerotium rolfsii* Sacc. is new in the Philippines. The disease is manifested by the water-soaked and darkened areas of the cortex of the stem of infected wheat plants. In the advanced stage of the disease, wilting and yellowing of the leaves occur. Wheat was found susceptible to the disease in all stages of development.

The incidence of the root rot was found to be reduced by allowing plant materials, such as water hyacinth stalks, leaves and animal manures to decompose in the soil before planting wheat seeds.

633.18:631.52
Rice - Disease and pest resistant varieties.

231. Evaluation of PARC 1, 2, C4-63G and IR20 rice varieties for tungro and leafhopper resistance. Nualvibha Srisamudh and Romeo S. Rejesus (Philippine Atomic Energy Commission, Quezon City). *Araneta Research Journal,* April-June 1972, v.19, no.2, p.115-136. graphs, tables, illus. 17 refs.

Mass screening technique for tungro resistance by Ling (1967) was used in the evaluation of the 4 rice varieties. Results showed that IR20 and C4-63G were highly and moderately resistant to tungro and leafhoppers, respectively, whereas PARC 1 and PARC 2 were highly susceptible. Younger plants were more susceptible than older plants and the highest infection was during the 1st and 2nd wks of the plant age. Highest percentage of transmission was at the 3rd instar of the insect vector followed by the adult stage.

633.18:632.4
Rice blast disease.

232. Investigation on the chemical control of rice blast (Piricularia oryzae Cav.) in the Bicol region. Fe D. Laysa and Belen Zaragoza. *Philippine Journal of Plant Industry,* First-Second Quarter 1972, v.37, nos. 1-2, p.1-13. tables. 6 refs.

Results of the study using a very susceptible variety, Tjeremas, showed that some conventional fungicides applied foliarly for the control of neck blast were effective, but their use does not offer significant economic returns. On susceptible varieties, Blasticidin S, Kasumin, Hinosan, Riogen dust, Antimucin, Cerezin and Mercide may be applied on 10-15-day-old rice seedlings to insure a healthy crop of seedlings at transplanting and to protect young plants from early attack of the blast disease.

The use of systemic fungicides appears most effective and economical. The application of Benlate, plus a sticker, Esso Citovett, gave the best result at the rate of 3/4 kg/ha.

633.18:632.95
Rice weevils - Control. Baythion.

233. Extremely low toxic storage pesticide discovered. *Philippine Farmers' Journal,* First Quarter 1972, v.14, no.1, p.37. table.

Tests were carried out to determine the most effective pesticide in controlling rice weevil (*Sitophylus oryzae*). Results showed that Baythion sprayed at 0.2% (a.i.) concentration produced 100% control in 4 mo. and was found to be safe.

633.2:631.5(914)
Pastures and meadows - Grass-legume mixtures.

234. Centrosema - a proven legume for Philippine pastures. Emil Q. Javier (College of Agriculture, University of the Philippines, College, Laguna). *Animal Husbandry and Agricultural Journal,* March 1972, v.7, no.3, p.27-28.

Under Philippine conditions, phosphate fertilization facilitates the establishment and continued growth of Centrosema. Studies conducted by the UP College of Agriculture showed that Centrosema grows and persists on Louisiana clay and Lipa clay loam, but growth and development were better when limed; an optimum pH of 5.8-6.1 was found suitable. The legume combines well with many types of grasses including cogon and bagokbok, such that with good management, a desirable grass-legume mixture can be maintained. For silage, soilage or cutting purposes, Centrosema combines well with Napier, Guinea and Paragrass.

633.51:631.52
Cotton - Varieties. Cotton - Experiments, Field.

235. Varietal introduction of cotton produced at CLSU. F. F. Campos, Q. M. Aban and R. B. Pesebre (Central Luzon State University, Muñoz, Nueva Ecija). *CLSU Scientific Journal,* July-Dec. 1972, v.8, no.2, p.1-4. tables.

Results of the study revealed that all varieties tested under the condition of the experiment grew and produced appreciable number of bolls within the 2 seasons of planting. Of all the varieties tested, Okraline, Acala 1517, Imperial Acala, Pima S_{14} and Deltapine 16 showed appreciable ginning performance. Bollworm infestation was controlled with the application of chemicals, such as Endrin, Azodrin 186 and Sevin 85 WP.

633.51:631.543 633.51:631.552
Cotton - Seeding. Cotton - Yield.

236. Study on the two systems of planting cotton as affecting yield. Filomena F. Campos and Mauricio M. Disu (Central Luzon State University, Muñoz, Nueva Ecija). *CLSU Scientific Journal,* July-Dec. 1972, v.8, no.2, p.5-7. table.

Results showed that the 2 systems of planting, the solid and the skip row systems, do not affect seed cotton yield in general. However, from the standpoint of production cost the skip row system is more profitable.

633.58:581.4 581.6
Bamboos.

237. Fiber-length variability in relation to the anatomical structure of bamboo. G. Isidro T. Zamuco, Jr. (FORPRIDECOM, College, Laguna). College, Laguna, Forest Products Research & Industries Development Commission, March 1972. 4p. (Technical note no. 115); *Science Review,* March-April 1972, v.13, no.2, p.27-32; *Philippine Lumberman,* Sept. 1972, v.18, no.9, p.28-30.

In most erect bamboo species, the length and percentage composition of fibers vary in the horizontal and vertical directions within the internodes as well as from the base, middle to top portions of the culm. Studies conducted by the FORPRIDECOM revealed that 60-70% of the weight of bamboo constitute fibers of varying lengths throughout the entire culm. However, although there is a decrease in fiber length in different portions of the culm, data showed that any portion of the bamboo culm would be suitable for the manufacture of pulp and paper. The common species in the Philippines suitable for pulp and papermaking are kauayan-kiling, yellow bamboo, kauayan-tinik, India bamboo, bayog, bolo and giant bamboo.

633.61:631.3(914)
Sugar plantations - Equipment.

238. Mechanization of sugar cane farming in the Philippines. Oscar S. Libunao. *Philippine Sugar Institute Quarterly,* April-June 1972, v.18, no.2, p.13-23. illus.

Presented is a brief review on the attachments of agricultural machinery used in sugarcane farming, namely: 1) gang harrow with land levelling attachment; 2) rotavator with underbuster and farrower; 3) tractor with chemical sprayer; 4) wheeled truck mounted with a boom-type sprayer; 5) furrower with fertilizer application; and 6) lime and manure spreader. Additional informations on other machineries are also given.

633.61:631.552:631.52
Sugar cane - Varieties.
Sugar cane - Yield.

239. Performance of some foreign and local varieties at the Luzon Experiment Station. A. M. Galvez, I. L. Jimenez, M. A. Tetango and M. A. Provido. *Philippine Sugar Institute Quarterly,* Jan.-March 1972, v.18, no.1, p.15-19. tables.

Of the 16 sugarcane varieties studied, Phil 56226 significantly outranked the standard varieties Phil 5333 and Phil 5460 in sugar production; CAC 57-60, CAC 57-11, Phil 58260 and Phil 6112 were the next highest yielders. Foreign varieties which deserved further testing are CP 47-193, CO 785, F 144, F 145 and CP 52-68.

633.61:631.82:631.552
Sugar cane - Yield.
Lime - Experiments, Field.

240. The effect of lime and calcium silicate on the yield of sugarcane. Diosdado R. Cunanan and Venancio M. Pecho. *Philippine Sugar Institute Quarterly,* April-June 1972, v.18, no.2, p.9-12. graph, tables. 10 refs.

Tests undertaken showed that a good yield of cane and sugar can be obtained with the application of agricultural lime. However, $CaSiO_3$ applied at 4 tons/ha. yielded more than $CaCO_3$ which is attributed to the response of sugarcane to silicon.

633.61:631.86 633.61:631.552
Fertilizers for sugar cane.
Sugar cane - yield.

241. The effect of mudpress as soil ameliorant on the yield of sugarcane. Genaro V. Urgel and Crispiniano C. Hernandez. *Philippine Sugar Institute Quarterly,* April-June 1972, v.18, no.2, p.3-8. tables. 5 refs.

Experiments conducted on a La Paz fine sandy loam soil in Paniqui (Tarlac) using variety CAC 57-60 showed that organic matter and moisture contents at harvest of the mudpress-treated plots increased as the amount of mudpress applied was increased. In the plant cane, the 10-ton and the 20-ton mudpress/ha. gave higher cane and sugar yields /ha. than the control. Likewise in the ratoon cane, significant increases in yield in tons /ha. were observed at the rates of 20, 40 and 80 tons /ha. Responses in sugar yields /ha. were insignificant.

633.61:632.3/.5 633.61:631.552
Sugar cane - Diseases and pests.
Sugar cane - Yield.

242. Some diseases associated with yield decline of cane varieties in the Philippines. J. R. Rivera (Philippine Sugar Institute, Bacolod City). *Sugarcane Farmers Bulletin,* March-April 1972, v.6, no.5, p.3-12. tables, illus. 21 refs.

The major sugarcane diseases associated with yield decline, such as fungus diseases, virus diseases and nematode infections are briefly discussed. Control measures on hacienda basis and on industry or national basis are given.

633.87:675.04
Tanning materials.

243. Kalumpit bark as a possible source of tannins for leather manufacture. E. V. Gonzales. *Forpride Digest,* Jan.-March 1972, v.1, no.1, p.34.

Studies revealed that the bark from Kalumpit *(Terminalia microcarpa,* Decne) contained 20% tannins. Its tannin extract had a purity of 71.7% and a 2.5 tannin to non-tannin ratio which is an indication of a good tanning capacity.

633.94:631.57 668.443
Elemi. Resinous products.

244. Tapping, collection and marketing practices of Manila elemi in Marinduque & Quezon provinces. D. S. Alonzo and F. F. Ordinario (FORPRIDECOM, College, Laguna). *Philippine Lumberman,* June 1972, v.18, no.6, p.26, 28, 30, 32. illus; *Forpride Digest,* Jan.-March 1972, v.1, no.1, p.54-55.

The methods of tapping Manila elemi from pili tree [*Canarium luzonicum* (Blume) A. Gray] were found to be crude and the resin obtained is of substandard quality. Tapping is done with a sharp bolo and a wooden mallet, and collection is done at 2-wk intervals. Recommendations to improve present practices of tapping are given.

633.946.1
Almaciga resin. Gums and resins - Chemistry.

245. Studies on the utilization of almaciga resin in the papermaking industry. Erlinda Cabotage-Salud, Pancracio V. Bawagan and Lauro A. Ynalvez (FORPRIDECOM, College, Laguna). *Philippine Lumberman,* April 1972, v.18, no.4, p.24, 26, 28. tables, diagr. 11 refs.

Studies on the chemical nature of almaciga *(Agathis philippinensis* Warb.) indicated that it is a poor source of paper size. This may be attributed to the cyclohexylamine salts of the resin acids of almaciga resin which are not of the abietene type. However, blends of almaciga rosin size and Benguet pine *(Pinus insularis* Endl.) resin size were found suitable for paper sizing.

Almaciga resin size prepared from crude and purified resins had the same size characteristics, but differed in composition and sizing properties from Benguet pine resin size or the commercial sizes.

634/635:581.14(914)
Growth inhibiting substances (plants).
2-Chloroethanephosphonic acid.

246. Effects of 2-chloroethylphosphonic acid on some Philippine horticultural crops. N. D. Bondad (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Geographical Journal,* April-June 1972, v.16, no.2, p.31-41. 38 refs.

Data on the responses of Philippine grown crops to CEPA (2-chloroethylphosphonic acid) are presented. Varied effects of CEPA observed on plant growth and development were: 1) off season flowering of mango ('Carabao') and pineapple ('Smooth Cayeeme'); 2) concentrating maturity and ripening of tomato ('2029') and coffee (Excelsa and Liberica); 3) acceleration of ripening and degreening of banana ('Lakatan', 'Latundan', 'Leines', 'Saba'), citrus ('Ladu', 'Szinkom', 'Valencia') and tomato ('Improved Harbot', '2029', 'VC-II'); and 4) modification of sex expression of cucumber (native variety), muskmelon (Gulf-stream) and patola *(Luffa acutangula* Roxbg.).

634.0.2
Kaatoan bangkal seedlings.

247. Effect of slope and spacing on the survival of kaatoan bangkal in Nueva Vizcaya plantation (results of one-year observation). Marcelino M. Maun and Arturo C. Sazon. Manila, Bureau of Forestry, April 1972, 7p. graph, tables. 2 refs. (Occasional paper no. 44)

Studies showed that the survival of nursery raised seedlings of kaatoan bangkal was not significantly affected by spacing but by the planting site. Medium to steep slopes inhibited the survival of the seedlings of the species. It is recommended that seedlings should be planted on sites with level to gentle slopes, fairly deep and fairly drained clayey soil. It was also observed that the species adapts naturally to moist soil when young.

634.0.2:582.949.1:631.543
Gmelina arborea.

248. Slope and spacing study of yemane in Nueva Vizcaya plantation. Arturo C. Sazon (Magat Forest Experiment Station, Bureau of Forestry, Diadi, Nueva Vizcaya). Manila, Forest Research Division, Bureau of Forestry, March 1972. 8p. 1ℓ. tables. (Occasional paper no. 43)

The study was conducted at the Magat Forest Experiment Station to determine the conditions that will promote the early establishment, development and yield of yemane [*Gmelina arborea* (L.) Roxb.] species under Nueva Vizcaya condition. Experiments in a randomized complete block design with 8 spacing distances as treatments and the 3 blocks representing different slope gradients were done. Of the 3 blocks studied, Block I had the highest survival with 95% surviving seedlings, followed by Block III (4%) and Block II (3%). The mean survival differences did not vary significantly with either slope or spacing, even if the slope gradients used (7°, 15° and 19°) were steep. This result may be attributed to the insensitivity of yemane to drainage conditions.

634.0.5
Forest mensuration - Methodology.

249. Fitting DBH-Clear length curves using a non-linear method. Jeremias A. Canonizado (Bureau of Forestry, Manila). Manila, Bureau of Forestry, May 1972. 7p. 5ℓ. graphs, tables. 4 refs.

Three methods of fitting DBH-clear length curves were tested using data gathered from continuous forest inventory plots. Results showed that Strand's model consistently proved to be more accurate than the hyperbolic and semilogarithmic models. Moreover, it can be used in varied applications in forestry and engineering.

634.3:632.3
Citrus - Diseases and pests.

250. Synergistic reactions between the pathogens of greening and seedling-yellows in citrus. A. L. Martinez (Bureau of Plant Industry, Lipa City). *Philippine Journal of Plant Industry,* First-Second Quarter 1972, v.37, nos.1-2, p.25-28. 11 refs.

The dual infections with the pathogens of greening and seedling-yellows on budlings of Ladu, Ponkan and Szinkom mandarin, Calamandarin and Florida rough lemon rootstocks resulted in more severe leaf symptoms, more stunting and greater number of plants to collapse earlier than infection with greening pathogen alone. The presence of seedling-yellows virus in greening-infected orchard trees is the primary cause of the serious decline of the citrus industry in the Philippines.

634.616:66.014 634.616:581.14
Coconut - Chemical composition.

251. Proximate analysis of the coconut endosperm in progressive stages of development. Zenaida N. Sierra and Celia F. Balleza. [Manila, 1972.] 7p. 8ℓ. graphs. 15 refs. Mimeographed. (Paper presented at the National Science and Technology Week Symposium, July 10-16, 1972, Manila)

About 8-15-mo.-old nuts were used in the study. Results showed that the moisture, protein and ash contents of the kernel decrease as the nuts mature; the oil content was found to increase with maturity of the fruit until the 15th mo. after which oil content decreases. An inverse relationship was noted between the oil and nitrogen-free extract. The crude fiber content was found highest in the 9th and 10th mo. and lowest in the early and later stages of fruit development.

635.64:632.3(914)
Tomato yellow leaf curl virus.

252. Preliminary study of the transmission of Philippine tomato leaf curl virus by Bemisia tabaci (Genn.). M. L. Retuerma, G. O. Pableo and W. C. Price (Guinobatan Experiment Station, Bureau of Plant Industry, Guinobatan, Albay). *Philippine Journal of Plant Industry,* First-Second Quarter 1972, v.37, nos.1-2, p.45-49. plates. 4 refs.

The Philippine tomato leaf curl (PTLC) is caused by a virus or virus-like pathogen transmitted by the whitefly *Bemisia tabaci* (Genn.) and by grafting, but by mechanical means. The vector is not identical with either tobacco leaf curl virus or tomato yellow leaf curl virus. *B. tabaci* transmitted PTLC virus after an acquisition feeding period of as short as one hr. Having acquired the virus, it is transmitted in an infection-feeding period of as short as 3 min. The maximum level of transmission was obtained with 10-20 whiteflies. Further study should be conducted to find the weed host of PTLC virus.

635.656:631.52
Beans, Mung - Disease and pest resistant varieties.

253. Comparative resistance of five varieties of mungo, Phaseolus aureus Roxb., to the attacks of the bean fly, Agronomyza phaseoli Coq. Florencio C. Balboa. *Araneta Research Journal*, Jan.-March 1972, v.19, no.1, p.66-79. tables. 8 refs.

The bean fly, *Agronomyza phaseoli* Coq., was found to attack the mungo plants in all stages of growth, most severely during the vegetative or seedling stage. Of the varieties tested, the Mungong Tagalog was the most resistant, thus, it was the highest yielder and the tallest plant.

Bean fly infestation can be minimized with the use of resistant varieties.

ANIMAL HUSBANDRY AND PRODUCE

636.082.4
Cattle - Performance records and registration.

254. Calf drop in the different stock farms and breeding stations in the Philippines for three fiscal years (1967 to 1970). Onofre S. Bonifacio. *Araneta Research Journal*, Jan.-March 1972, v.19, no.1, p.41-50. tables. 10 refs.

The average calf drop for the 9 stock farms surveyed was 68.10%, with the Baguio Stock farm, raising Jersey, giving the highest calf drop (85.78%). The average for the 12 breeding stations was 74.53%, with Iloilo giving the highest calf drop (83.72%). The average calf drop for stock farms and breeding stations was 70.13%. Of the 12 breeds surveyed, Red Sindhi with an average calf drop of 81.02% was the most common and can be considered outstanding.

636.2:591.16 636.293:591.16
Cattle - Pregnancy. Carabaos - Pregnancy.

255. A study on the incidence of right-horn and left-horn pregnancies in slaughtered pregnant native cows and carabaos. Bayani S. Santos and Alexander Gilo (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine*, June 1972, v.11, no.1, p.75-80. tables. 10 refs.

The study was made on 550 pregnant native cows and carabaos. It was noted that there were more right-horn than left-horn pregnancies and that in most cases the corpus luteum was on the same side of the gravid horn.

636.2.082.4 631.2
Cattle farm management. Pastures and meadows.

256. Cattle-coconut farming in Mindanao. M. R. de Guzman, Jr., J. C. Madamba and J. A. Alunan, *Animal Husbandry and Agricultural Journal*, June 1972, v.7, no.6, p.8-10, 12, 14. tables.

The present management status and the potential for expanded production of cattle-coconut farms in Mindanao are discussed. A survey of 103 farms which have been in operation from 2 to 50 yrs showed that the calf crop ranged from 54.1 to 80.3%. It is believed that better husbandry technique can attain 90% calf crop and that planting pasture grasses can increase the present stocking rate to 2 animal units/ha. and thus improve the present quality of animal produce.

636.2.085(043)
Calves - Feeding - Experiments.

257. A study on the influence of limited supplemental feeding of concentrates to growing crossbred calves during the rainy season. Samrit Sanbua. Malabon, Rizal, Araneta University Foundation, April 1972. 13ℓ. 97p. tables, illus. 38 refs. (Thesis. M. S. in Animal Husbandry, Major in Cattle Husbandry)

Experiments with five 6-mo.-old calves showed that limited supplemental feeding of concentrates promoted higher weight gains and better growth in terms of heart girth measurement, body length and height than those not given supplemental concentrates.

636.3.082
Sheep breeding.

258. Operation of a sheep flock. Valente Villegas. *Better Poultry and Livestock*, March 1972, v.13, no.7, p.30, 32. illus.

Data on the reproduction, liveweight, dentition, mortality and wool production of sheep raised in the UP College of Agriculture, College (Laguna) are briefly discussed. The data are based on 150 male and 134 female sheep raised in 1945-1954 which produced 102 rams and 128 ewes. The female stock consisted largely of a local strain and the rams were mainly of the Shropshire blood. Breeding ewes constituted 50.5% of the flock of which 80.5% lambed/yr.

636.38:591.134 636.38.082
Lambs, Weight and measurements of.

259. Birth weight, growth and habits of lambs. Rufino M. Sojetado and Valente Villegas (College of Agriculture, University of the Philippines, College, Laguna). *Animal Husbandry and Agricultural Journal,* March 1972, v.7, no.3, p.25.

Data on the birth weight, growth and habits of the Laguna sheep, a new breed developed at the UP College of Agriculture are presented. In general, sheep are relatively easy to raise in Bukidnon, Cotabato, Masbate and Cagayan. At 5-12 mo. old, lambs may be slaughtered for food, and at one-yr-old, about 682 g wool may be obtained.

636.39.083.1 636.39.082
Goat milking. Milking parlors.

260. Milking platform for does. Valente Villegas (College of Agriculture, University of the Philippines, College, Laguna). *Better Poultry and Livestock,* May 1972, v.13, no.9, p.44-45. illus.

An ideal platform for milking the doe is briefly described. A Philippine doe was found to produce 39,029.7 ml milk in a lactation period of 112 days, while a grade Indian doe produced 61,503.2 ml in 155 lactation period. Studies at the UP College of Agriculture also revealed that an Anglo-Nubian buck bred to Philippine doe produced progeny of bigger size and higher milk yield than Philippine goats.

636.4.085
Swine - Feeding - Experiments.

261. Coconut by-products in swine rations. *Better Poultry and Livestock,* May 1972, v.13, no.9, p.37-39.

A study on 30 weanling pigs weighing 3.5-9 kg was conducted to determine the influence of the different levels of copra meal and paring meal on the growth performance, digestibility of dry matter and crude protein, and carcass measurements of pigs from weaning to slaughter weight. Results showed that pigs required longer feeding periods to attain 75 kg liveweight as the copra or paring feed meals increased from 20 to 30% in the ration. The average daily gain also slightly decreased and more feed was required to produce a kg gain. Digestibility for crude protein of starter rations showed slight decreases as the levels of the coconut meals increased. The carcass values of pigs slaughtered at 85 kg did not differ significantly among the treatments, except for the significantly hard fat of pigs fed with 30% copra meal.

636.4.087
Swine - Feeding - Experiments.

262. A study on the cost of growing and fattening butcher hogs from early weaned hybrid pigs. Max M. Bonifacio. *Araneta Research Journal,* Jan.-March 1972, v.19, no.1, p.51-56. tables, illus. 4 refs.

Experiments on one-mo.-old Large White x Landrace pigs showed that early weaned pigs given 20% C.P. mash on their first 30 days and followed with 15% C.P. high energy growing mash will grow and fatten like pigs weaned at 2 mo. old. High gross profit was observed by using home-compounded feed.

636.5.082.4
Poultry farm management.

263. A study of the management practices followed by some selected egg farmers in Batangas and Laguna. E. C. Coligado, W. Z. Rosacia and A. S. Alejar (College of Agriculture, University of the Philippines, College, Laguna). *Animal Husbandry and Agricultural Journal,* March 1972, v.7, no.3, p.18-19. tables.

A survey among 32 egg raisers revealed a wide variety of practices, although majority tend to approach the modern trends in poultry management. 2/3 of the farmers keep less than 1000 layers and the others keep 1000 to more than 2000 layess. In any size farm, bamboo is generally preferred for slat floors and walls. Cages are the most popular type of housing for layers and many favor a tendency to utilize housing space to the maximum.

636.5.085:582.998
Poultry - Feeding - Experiments.
Sunflower seed meal.

264. Utilization of unprocessed sunflower seeds as part of the broiler ration. Bernardino S. Ladia and Salvador P. Neric (Central Luzon State University, Muñoz, Nueva Ecija). *CLSU Scientific Journal,* Jan.-June 1972, v.8, no.1, p.35-40. table. 9 refs.

One hundred eighty one-day-old straight run "Starbro" broiler chicks were used to determine the influence of 5, 10 and 15% ground sunflower seeds in the ration of broilers up to 8 wks old. Results showed that the chicks fed with 10% ground sunflower seeds were significantly heavier, required less feed to produce a kg gain in weight and cost less than those birds fed with

5 and 15% ground sunflower seeds or those fed with pure B-Meg commercial mash feeds.

636.5.086
Poultry - Feeding - Experiments.

265. A preliminary investigation on the effect of ipil-ipil, water-lily, and/or acacia leaves on the growth rate of chicks. Ignacio S. Pablo. *Philippine Educational Forum*, April 1972, v.21, no.1, p.29-41. graphs, tables. 6 refs.

Feeding experiments were conducted on 56 day-old Dekalb chicks. Results showed that 3% water lily or acacia promoted the highest body weight gain comparable to that effected by commercially available feed meals. Also, better growth performance was noted in birds fed with either water lily or acacia leaves compared with ipil-ipil diet. In general, 3% level was the optimum concentration for each of the leaf meals for basal diet supplementation to effect optimum growth.

636.5.087
Poultry - Feeding - Experiments.

266. A study on the effect of modifying the straight feeding of broiler mash on the growth and weight of the birds during the last four weeks of rearing. Ambrosio Martinez and Delfin Lorilla. *Araneta Research Journal*, Jan.-March 1972, v.19, no.1, p.57-65. graph, tables, illus. 6 refs.

Experiments with 26 Barker MacMillan broiler chicks showed that growing mash fortified with 2.5% molasses promoted high weight gains and feed conversion efficiency. An average terminal weight of 1.55 kg was obtained at 8 wks old. The female birds were noted to have slower growth rate than the males.

636.5.089(914)
Poultry - Diseases and pests - Therapeutics.
Parasites - Poultry.

267. Important parasites of poultry in the Philippines. Mario S. Tongson (College of Veterinary Medicine, University of the Philippines, Quezon City). *Better Poultry and Livestock*, April 1972, v.13, no.8, p.37-43; May 1972, no.9, p.48-52.

The control and preventive measures against parasites frequently infesting local poultry are described. The more common species of intestinal worms, lice, mites and protozoan parasites are briefly discussed.

636.58.085
Poultry - Feeding - Experiments.

268. Energy and protein requirements of starting S. C. White Leghorn pullet chicks. J. P. Mateo, A. S. Alejar, F. V. Navarro and M. M. Labadan (College of Agriculture, University of the Philippines, College, Laguna). *Animal Husbandry and Agricultural Journal*, March 1972, v.7, no.3, p.14-16. tables. 10 refs.

Feeding experiments were conducted on 480 one-day-old S. C. White Leghorn pullet chicks. Results showed that 3000 kcal metabolizable energy/kg ration and an energy protein ratio of 110 are required for maximum growth and feed conversion efficiency.

637.5:380.13
Livestock - Marketing.

269. A study on a system of meat marketing in the Greater Manila Area. Leopoldo M. Aguilar and Eliseo S. Contreras (Bureau of Animal Industry, Mandaluyong, Rizal). *BAI Recorder*, April-June 1972, v.31, no.4, p.17-23. tables.

The study was conducted for a period of 3 mo. to determine the actual prevailing prices of meat in the Greater Manila Area and to serve as a guideline in livestock marketing business. Results showed that livestock marketing practices varied in form and mode. In a commercial or semi-commercial livestock enterprise, cost and classification of animals were mainly based on the actual liveweight and body conformation, while on the assembly market ("paradahan"), the sole basis was on the spot classification. The different ways of disposing of live animals in the stockyard are briefly discussed.

637.51
Slaughtering.

270. A study on the incidence of pregnancy in slaughtered animals. Zenaida G. Cruz and Salvador H. Escudero (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine*, June 1972, v.11, no.1, p.67-74. tables. 9 refs.

The study was made on 630 heifers and cows, 343 carabaos, and 1452 gilts and sows. It was found that the incidence of pregnancy in slaughtered animals was highest in cattle (25.71%), followed by carabaos (23.03%) and swine (1.93%). In most cases, pregnancy was detectable. It is suggested that pregnancy diagnosis be performed in the farm before disposing for slaughter and in abattoirs. The significant economic losses resulting from the slaughter of pregnant animals are emphasized.

MARINE HUSBANDRY

639.64:582.263
Chlorella.

271. **Studies on protein and fat contents of four local Chlorella strains.** Bienvenida R. Rodulfo, Patrocinio S. Santos (National Institute of Science & Technology, Manila) and Carolyn P. Navarro (National Research Council of the Philippines, Quezon City). [Manila, 1972]. 11p. tables. 22 refs. Typewritten. (Paper read at National Science and Technology Week Symposium, July 10-16, 1972, Manila)

The *Chlorella* strains (BRC-Ch 2, BRC-Ch 3, BRC-Ch 5 and BRC-Ch 9) were propagated using Knop's and Allen's media. The chemical analysis of dried algae harvests showed that BRC-Ch 5 (*Chlorella pyrenoidosa* Chick) contained the highest amount of protein, 60.5% in Knop's medium while BRC-Ch 2 gave the highest amount of lipid, 36.4% and crude fat, 22.7% in Allen's medium. The lipid portion of BRC-Ch 2 yielded 37.9% unsaponifiable matter and 6.4% fatty acid. The methanol extracts when tried on 6 test organisms for antibiotic activity were found slightly active against *Micrococcus pyogenes* var. *aureus*, *M. pyogenes* var. *aureus* (penicillin resistant), *Bacillus cereus* var. *mycoides* and *B. subtilis*.

639.64(914)
Algae.

272. **Eucheuma, a commercially important Philippine seaweed.** Gavino Trono, Jr. (Dept. of Botany, University of the Philippines, Quezon City). [Manila, 1972]. 2p. Mimeographed. (Paper presented at the National Science and Technology Week Symposium, July 10-16, 1972, Manila)

Eucheuma is generally found on reefs associated with other species. Presently, important species are being exported, mostly *E. cottonii*, *E. striatum* and *E. spinosum*. *Eucheuma* is an important source of carrageenan.

FOOD. COOKERY

641.1:613.26
Beans - Food value.

273. **Digestibility, biological value and net protein utilization of some beans.** Josefina M. Gonzales, Cristobal L. Miranda, Lorenzo D. Brennisen and Corazon G. Aguilar (National Institute of Science & Technology, Manila). *Philippine Journal of Nutrition,* April-June 1972, v.25, no.2, p.103-112. tables. 7 refs.

The protein quality of 12 varieties of beans was evaluated using albino rats as test animals. The digestibility, biological value and net protein utilization were found to be 65-80%, 54-78% and 40-62%, respectively. Although beans are poor sources of methionine, cystine and tryptophan, they have in general high lysine content. Of the varieties tested, chick pea, red mung bean, black cowpea and tapilan showed the best nutritional quality.

641.56
Infants' food - Food value.
Food products, New.

274. **Development of drum-dried weaning foods based on indigenous sources. II. Coco cereal weaning flakes based on coconut skim milk solids.** Estelita M. Payumo, Gilda R. A. Legaspi and Katherine Apolinario (National Institute of Science & Technology, Manila). *Philippine Journal of Nutrition,* April-June 1972, v.25, no.2, p.95-102. tables. 16 refs.

The pre-cooked weaning food product was prepared from a blend of rice flour, mung bean flour, fish protein concentrate and coconut skim milk solids fortified with vitamins and other additives. It contains 25% protein, and biological studies showed a protein efficiency ratio of 2.17. The limiting amino acids were found to be methionine, threonine and isoleucine. Storage studies showed that the product was still organoleptically acceptable even after 6 mo. storage at room temp.

CHEMICAL AND ALLIED INDUSTRIES

66.02:634.616.002.6
Food processing plants - Experimental plants.
Coconut products.

275. **The integrated pilot plant on coconut products in Liliw, Laguna.** Pedro L. Rubio (National Institute of Science & Technology, Manila). Manila, 1972. 8p. Mimeographed. (Paper presented at the National Science and Technology Week Symposium, July 10-16, 1972, Manila)

A pilot plant was set up to accomodate some activities and completed laboratory researches at the National Institute of Science and Technology (NIST) utilizing the wastes and by-products of "gata" processing. Most of the equipment and machineries used in the operation were designed and fabricated by NIST. The preparation of canned "gata", simulated meat spread, vinegar, nata, activated carbon and the production of charcoal briquettes are briefly discussed.

663.38 634.0.8
Wine and wine making. Basi.

276. **Activated kaatoan bangkal wood charcoal treatment of sugarcane basi.** Nieva B. Laxamana (FORPRIDECOM, College, Laguna). *Forpride Digest,* Jan.-March 1972, v.1, no.1, p.19-22. table. 11 refs.

A sample of wood charcoal from kaatoan bangkal [*Anthocephalus chinensis* (Lamk.) Rich. ex Walp] was activated with zinc chloride for treatment of sugar "basi". Treatment with activated charcoal greatly improved the taste, color and odor of "basi". No difference in alcohol content was observed before and after the treatment. No protein turbidity was also noted.

664.8.03:634.616
Coconut research. Coconut products.

277. **Research efforts on the food uses of coconuts.** J. R. Velasco, O. N. Gonzalez and Pedro Rubio (National Institute of Science & Technology, Manila). *Chemists' Quarterly,* June 1972, v.10, nos.1-2, p.13-26. flowsheets, table.

Researches on dry and wet processes of coconut meat are described. Patents on these 2 processes were issued to some workers in this field of study.

Researches on finding the best uses of the fruit at each stage of development, utilizing coconut water as a medium for micro-organisms, utilizing coconut protein and coconut flour, semi-commercial production of canned gata and fabricating precision devices for use in coconut processing are being pursued in the different laboratories of the National Institute of Science and Technology.

664.8.039.5:634.42
Mangoes - Storage.
Mangoes - Chemical composition.

278. **Sensory, chemical and nutritional evaluation on the effect of ionizing radiation on mango (Mangifera indica Linn.) carabao variety.** Ignacio S. Pablo, Juanita A. Manalo and Victoria A. Cardeño. *Philippine Journal of Nutrition,* April-June 1972, v.25, no.2, p.113-124. graphs, tables, illus. 17 refs.

Irradiation studies were made on mature green mango fruits of the Piko and Carabao varieties. Results showed that fruits irradiated at 60 krad had low percentage of decay even after 3 wks storage at 30°C compared to unirradiated fruits, although there was significant difference in color. Also, irradiated fruits had high B-carotene and ascorbic acid contents.

WOODWORK AND TIMBER INDUSTRY

674.03:531.42(914)
Wood - Specific gravity.

279. **Specific gravity of Philippine woods.** J. E. Rocafort. *Forpride Digest,* Jan.-March 1972, v.1, no.1, p.36.

The specific gravity values of 629 Philippine trees representing 208 species were obtained at 5 different levels of moisture content. A copy of the table may be obtained from the Editor, Forpride Digest, FORPRIDECOM, College (Laguna).

674.03:595.73(914)
Wood - Diseases and pests. Termites.

280. **Philippine wood-destroying termites.** M. L. Garcia. *Forpride Digest,* Jan.-March 1972, v.1, no.1, p.40-41.

Briefly described are the most common and economically destructive termite species in the Philippines, namely: *Cryptotermes cynocephalus* Light, *C. dudleyi* Banks, *Coptotermes vastator* Light, *Microcerotermes los bañosensis* Oshima, *Macrotermes gilvus* Hagen and *Nasutitermes luzonicus* Oshima.

674.03:620.11(914)
Wood - Testing.

281. **New sampling plan promotes standard mechanical testing of Philippines woods.** F. M. Lauricio. *Forpride Digest,* Jan.-March 1972, v.1, no.1, p.38-39.

Results of tests made on apitong and Benguet pine showed that the new random method of sampling is more economical and efficient in sampling Philippine woods than the ASTM method. The method is directed towards obtaining more trees and testing only a few specimens.

674.03:620.17(914)
Wood - Properties and uses.

282. **Relationship for Philippine shrinkage-specific gravity wood species.** J. E. Rocafort. *Forpride Digest,* Jan.-March 1972, v.1, no.1, p.39.

Specific gravity and shrinkage tests of 503 trees, representing 131 species were conducted following the ASTM standards and the procedure adopted in Australia, respectively. Analyses of variance showed that variations in shrinkage values among species due to sp. gr. really occur. A copy of the table on mean sp. gr. and shrinkage values of Philippine woods may be obtained from Forpride Digest, FORPRIDECOM, College, (Laguna).

674.03.04
Lumber - Drying.

283. **Effect of presteaming on the seasoning behavior of 1-inch tiaong (Shorea agsaboensis Stern).** Ernesto B. Ordinario. *Forpride Digest*, Jan.-March 1972, v.1, no.1, p.23-28. graphs. 8 refs.

Results of the experiments showed that presteaming reduced drying time of tiaong boards by 2-3 hrs for kiln-drying and 2-23 days for air-drying, irrespective of the duration of steaming. No apparent effect on drying rates was observed in presteaming beyond 2 hrs. Moisture gradient was less steep on presteamed samples than on unsteamed boards after kiln-drying. Lesser surface and end checks, twists, cups and casehardening were noted in presteamed boards than the control.

674.03.04
Wood preservation.

284. **Study on the effectiveness of some proprietary surface coating to minimize moisture changes and to prevent checking and warping of wood products.** M. G. Laxamana and G. V. Tamayo, Jr. *Wood Preservation Report* (Forest Products Research & Industries Development Commission, College, Laguna), March-April 1972, v.7, no.2, p.2-7. 7 refs.

Commercial proprietary materials obtained from the heartwood of tangile bolts were studied. The fully-coated, partly coated and uncoated or control specimens were exposed in ordinary room condition and in the air-conditioned room maintained at 65± 1% R. H. and 21.1°-22.2°C. Results showed that the specimens with an initial moisture content (MC) of 10.7-11.9% reached an average equilibrium moisture content (EMC) of 17.5% after 36 wks of exposure and a slight increase of over 1% MC within 5 wks of exposure. The control specimens attained its EMC of about 10.6% after 7 wks of exposure, much ahead of the coated specimens. Cupping and twisting were more pronounced in the controls with a higher MC level and exposed in an air-conditioned room than those of the coated specimens. Banana oil and PEG-1000 proved to be the most promising coatings to minimize moisture absorption, and prevent checking and warping of partially and finished wood with 10-11% MC.

674.243
Veneers and veneering.

285. **Some common defects of rotary-cut veneer.** C. L. Inawat (FORPRIDECOM, College, Laguna). College, Laguna, Forest Products Research & Industries Development Commission, April 1972. 3p. 8 refs. (Technical note no. 116)

The causes and remedies to minimize or eliminate defects in rotary-veneer cutting are briefly discussed. The common defects mentioned are thickness variability, veneer looseness, surface roughness and other surface defects. For most Philippine commercial species, a knife angle of 90° has been found suitable in cutting 1/32 in.-1/6 in. thicknesses to eliminate thickness variability.

PAPER AND PULP INDUSTRIES

676.14:676.84
Fiber-board containers. Bagasse.

286. **Sugarcane bagasse for container boxes.** *Philippine Lumberman*, April 1972, v.18, no.4, p.33.

Studies conducted at the FORPRIDECOM, College (Laguna) showed that good corrugating medium can be manufactured from depithed sugarcane bagasse by the mechano-chemical process at a pulping time of one hr. Tests revealed that the product exhibited high bursting, tearing, breaking and folding values, and was found less porous and highly resistant to ring-crush tests.

676.15.017:674.82 676.4.017:674.82
Wood pulp - Testing. Papermaking.

287. **Kraft pulping and papermaking evaluation of sawdust.** E. P. Villanueva. *Forpride Digest*, Jan.-March 1972, v.1, no.1, p.33-34.

Experiments conducted at the FORPRIDECOM, College (Laguna) involved pulping of sawdust by the conventional sulfate process in a rotary digester. Applying a chemical charge of 15% NaOH and 5% Na_2S based on the moisture-free weight of wood, the process yielded pulps ranging from 46.8 to 49.6%. The pulps had moderate bleaching characteristics with permanganate numbers varying from 12.3 to 17.5.

676.16.02
Wood pulp. Gmelina arborea.

288. Sulfate pulping studies on yemane (Gmelina arborea, Roxb.). C. P. Estudillo, R. V. Visperas, C. H. Ballon, O. B. Tadena and E. P. Villanueva (FORPRIDECOM, College, Laguna). *Philippine Lumberman*, April 1972, v.18, no.4, p.18-23. tables. 13 refs.

Results of the studies showed that yemane responded favorably to the sulfate pulping process and gave high quality and easy-bleaching pulps. The optimum pulping condition was found to be 25.5% sulfidity, 15.6% active alkali, 4:1 liquor-to-material ratio, and cooking time of 30-90 min at 170°C. Pulp yield ranged from 53.76 to 60.40% at sulfidity of 0.0%-45%, with the pulp strength properties varying directly with sulfidity.

676.16.1.02:634.616
Pulp manufacture. Coconut leaf.

289. Chemical pulping studies of the coconut leaf. Eduardo S. Serra, Feliciana R. Ong, Leonor R. Arcilla, Felixberto J. Judi and Benjamin R. Rambaud. Manila, National Institute of Science & Technology, March 1972. 10p. graphs, tables, illus. 6 refs. (Technical bulletin no. 15)

Pulping experiments were done on coconut petiole using the sulfate, soda and neutral sulfate and semi-chemical (NSSC) digestion processes. Based on the physical and chemical properties, the soda and sulfate pulps were found more superior introducing high quality paper than the NSSC pulps. However, the corrugating board from the NSSC pulps has higher physical properties than the commercial board, hence, it is the recommended product to be produced from coconut petiole. NSSC process also gave the highest yield and lightest colored pulp.

TEXTILE INDUSTRIES

677.15.027
Banana fiber pulp.

290. Dissolving pulp from non-wood materials. 2. Botolan fibers. Benefrida O. Bawagan and Pablo M. Nicolas (FORPRIDECOM, College, Laguna). *Philippine Lumberman*, May 1972, v.18, no.5, p.30-32. tables. 12 refs.

Wild banana (botolan) dissolving pulp was prepared by the prehydrolysis-sulfate pulping and multi-stage bleaching process. A pulp yield of 38.9% with brightness of 86 was obtained at prehydrolysis-sulfate pulping time of 90 min at 170°C and a liquor to material ratio of 6:1. The pulp had a high alpha-cellulose content ranging from 90.8% to 92.6% and low pentosan, ash and lignin contents which are comparable to those specified for a commercial viscose rayon pulp.

COMPUTING DEVICES

681.143:608.3 681.143:639.2.06
Slide rules - Patents.
Patents and inventions.

291. San Antonio - the first fisheries inventor. Polly C. Pascual. *Fisheries Newsletter*, Jan.-March 1972, p.3-9. illus.

A circular slide rule invented by Victorino T. San Antonio of the Philippine Fisheries Commission (Manila) is described. The slide rule consists of a circular stationary base and one or more rotatable circular slides. It facilitates computations needed in fish net-making. The invention was awarded Patent No.6218, Nov. 10, 1971.

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NOTE: Listed hereunder are the publications from which pertinent articles are abstracted in this issue.

A. PERIODICALS

- Acta Medica Philippina
- Animal Husbandry and Agricultural Journal
- Araneta Research Journal
- BAI Recorder
- Better Poultry and Livestock
- Bureau of Forestry
  - Occasional Paper
- Bureau of Mines
  - Report of Investigation
- CLSU Scientific Journal
- COMVOL Letter
- Chemists' Quarterly
- Chest Diseases
- Filipino Family Physician
- Fisheries Newsletter
- Forest Products Research & Industries Development Commission
  - Technical Note
  - Wood Preservation Report
- Forpride Digest
- Journal of the Philippine Medical Association
- Leyte-Samar Studies
- Mineral Engineering Magazine
- Mining & Industrial Magazine
- National Institute of Science and Technology
  - Technical Bulletin
- Philippine Agriculturist
- Philippine Atomic Energy Commission [PAEC (D)]
- Philippine Educational Forum
- Philippine Farmers' Journal
- Philippine Geographical Journal
- Philippine Journal of Nutrition
- Philippine Journal of Pediatrics
- Philippine Journal of Plant Industry
- Philippine Journal of Science
- Philippine Journal of Surgical Specialties
- Philippine Journal of Veterinary Medicine
- Philippine Lumberman
- Philippine Mining & Engineering Journal
- Philippine Mining Record
- Philippine Scientist
- Philippine Sugar Institute Quarterly
- Proceedings of the Philippine Society of Endocrinology and Metabolism
- Santo Tomas Journal of Medicine
- Science Review
- Sugarcane Farmers Bulletin

B. OTHER DOCUMENTS

Papers:

- National Science and Technology Week Symposium
  July 10-16, 1972, Manila
- 3rd Symposium on Mineral Resources Development and the 18th Mine Safety Conference
  Nov. 29-30, 1971, Manila
- University of the Philippines
- Utilization of Geothermal Energy Symposium
  July 13, 1972, Manila

Theses:

- Araneta University Foundation
- University of Santo Tomas
  - Faculty of Graduate School

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PHILIPPINE ABSTRACTS

A quarterly classified summary of the latest Philippine publications in the field of science and its applications (UDC 5 and 6)

Vol. 15, Nos. 1-2 January-June 1974

GEOLOGY

553.534
Volcanic ash, tuff, etc.

1. A study of the sorptive characteristics of local tuff for waste treatment and disposal. *Philippine Atomic Bulletin,* Nov. 1972, v.1, no.3, p.6-15.

The study conducted at the Philippine Atomic Research Center (Quezon City) through laboratory scale tests showed that tuff materials could effectively absorb the cations studied under the following ion exchange capacity: 10 meq. of cesium, 10 meq. of strontium and 0.6 meq. of cobalt for every 100 g of tuff. At least 10 g of the tuff materials could be used effectively for the decontamination of radioactive waste containing Co, Sr and Cs with the flow rate of 5 ml/min at pH 5.5 for Co and Cs and pH 10 for Sr. The pilot plant scale test showed that an improved average ion exchange capacity of 6.66 meq. of Co was absorbed for every 100 g of tuff materials, indicating that application of tuff as an ion exchanger can be best utilized with other methods of waste materials.

BACTERIOLOGY

576.8:615.779
Bacteria, Pathogenic. Antibiotics.

2. The sensitivity to various antibiotics of pathogenic enteric bacteria isolated from diseased poultry and swine. Meliton N. Novilla and Cydippe F. Meñez (College of Veterinary Medicine , University of the Philippines, Quezon City). *Proceedings of the Ninth Annual Convention of the Philippine Society of Animal Science,* Nov. 9-10, 1972. 13p. tables. 18 refs.

Results of *in vitro* sensitivity tests conducted for over a 4-yr period showed the development of drug-resistant strains of entero-pathogenic bacteria as *Escherichia coli* and *Salmonella* organisms, which are not only single resistant but also multiple resistant. Of the *E. coli* strains from poultry, 82% were found resistant to Chlortetracycline, 76% to Oxytetracycline and 87% to triple sulfa. All strains isolated from pigs were resistant to both antibiotics and the combination of sulfonamides. Of the *Salmonella* strains isolated, 17% were resistant to Oxytetracycline, 20% to Chlortetracycline and 100% to sulfonamides.

576.851:615.779
Disinfection and disinfectants.

3. The effect of slaked lime on bacteria. I. Comparative study with two imported disinfectants. Firelli Alonso and Deirdra Garcia (St. Theresa's College, Cebu City). *Animal Husbandry and Agricultural Journal,* Sept. 1972, v.7, no.9, p.24-25. tables. 3 refs.

Study revealed that slaked lime ("apog") gave significantly better bactericidal and sporocidal actions on *Staphylococcus citreus, Salmonella typhosa* and *Bacillus subtilis* than the 2 well known powerful disinfectants, creoline and phenol.

576.851:636.293:591.132.1
Stomach - Rumen - Bacteriology - Carabaos.

4. Dietary effects on the ruminal microbial count of carabao. L. C. Eala, T. J. Aranas (Dairy Training and Research Institute, College, Laguna) and P. L. Lopez (College of Agriculture, UPLB, College, Laguna). *Proceedings of the Ninth Annual Convention of the Philippine Society of Animal Science,* Nov.9-10, 1972. 15p. graphs.

Bacterials counts of 2 fistulated matured carabaos fed with Napier grass, rice straw-concentrate and rice straw-concentrate-silage diets for 3 different periods were compared to those of 2 fistulated matured Holstein cattle fed with Napier grass. Result showed that there was variation in counts between diets. The mean bacterial counts of carabao fed with Napier grass were consistently higher than those in the other 2 diets. The bacterial counts of carabao (126 x 107 colonies/ml) and Holstein-cattle (263 x 107 colonies/ml) were highest on first hour after feeding, decreasing progressively in carabao and remaining at high levels up to the last collection of rumen samples in cattle. The pH of the carabao rumen fluid in the 3 diets at different hours was constant at 6.9 while the mean concentrations of total volatile fatty acids, ammonia-nitrogen, non-protein nitrogen and total nitrogen varied.

BOTANY

581.4:674.03 581.6
Wood fiber.

5. Why study wood fibers? J. O. Granada. College, Laguna, Forest Products Research & Industries Development Commission, Nov. 1972. 2p. 12 refs. (Technical note no. 123)

Scientific studies based on morphological characteristics, properties and dimensions of wood fibers were undertaken to determine the suitability of species for a particular use especially for pulp and papermaking, to select timbers for construction materials, wood-preservation studies and tree-bearing programs for the production of improved and uniform quality of wood and to understand the problems involved in the impregnation processes. A knowledge on wood properties and morphological characteristics can give a good indication of the behavior of wood used either in the form of solid timber or as an individual fiber.

581.526.325.2(914)
Plankton.

6. The phytoplankton of Silut Bay, Liloan, Cebu. II. The ceratium. Araceli Gonzales Almase. *Philippine Scientist*, 1972, v.9, p.33-39. illus. 6 refs.

Briefly described are the 11 *Ceratium* sp., namely *C. fuscus*, *C. pentagonum*, *C. furca*, *C. trichoceros*, *C. macroceros*, *C. dens*, *C. concilians*, *C. molle*, *C. tripos*, *C. breve* var. *parallelum* and *Ceratium* sp., based on the morphology of the specimens as seen in the planktonic state. Body size measurements were omitted in the descriptions as these were found highly variable among the representative species observed.

582.26
Algae - Classification.
Algae - Characterization.

7. The algae of the Tigbao water supply. Patrocinio M. de los Reyes (Divine Word University, Tacloban City). *Leyte-Samar Studies*, 1972, v.6, no.1, p.48-60. tables, illus. 11 refs.

Twenty species of algae were identified, 8 of which belong to Cyanophyceae, 6 to Chlorophyceae and 6 to Bacillariophyceae. Plants belonging to Cyanophyceae are characterized by blue-green pigments diffused in the protoplasm, are propagated asexually by means of simple cell division or by hormogonia and may be unicellular or multicellular. Plants of the Chlorophyceae and the Bacillariophyceae species are characterized by yellowish green to golden brown pigments localized in plastids and in Chromatophores. Both species can be propagated asexually and sexually and may be unicellular or colonial or filamentous.

Taxonomic key and description of the species are given.

582.28:576.3
Fungi - Development.

8. Cephaliophora tropica Thaxter: Cytology and conidial development. Niphon Visarathanonth (Dept. of Entomology and Plant Pathology, Kasetsart University, Bangkok, Thailand). *Philippine Agriculturist*, Aug.-Sept. 1972, v.56, nos.3-4, p.77-85. illus. 12 refs.

A Philippine isolate of *Cephaliophora tropica* Thaxt. cultured by the agar-block method, with potato-dextrose agar as the growth medium, was studied. Multinucleate hyphal and conidial cells were observed. Nuclear division was by simple fission. Neither distinct chromosomes nor nuclear envelope was observed. Hyphal anastomosis was of common occurrence.

582.394(914)
Ferns.

9. A summary of our present knowledge of the ferns of the Philippines. M. G. Price. *Kalikasan*, 1972, v.1, no.1, p.17-53. 74 refs.

Presently, a total of 920 species belonging to 152 genera are recognized. An attempt is made to collate the important taxonomic literature, integrating new information in the framework provided by Copeland's Flora, which is critically reviewed. 3 new combinations are proposed in the genus *Tectaria* and a few reductions to synonymy and several range extensions are reported. It is believed that many ferns specially in Mindanao are still unknown.

582.542:581.132
Imperata cylindrica. Photosynthesis.

10. Field measurement of net carbon dioxide exchange on cogon (Imperata cylindrica (L.) Beauv.) P. E. Sajise and R. B. Musgrave. *Philippine Agriculturist*, Oct.-Nov. 1972, v.56, nos.5-6, p.155-167. graphs, tables, illus. 18

refs.

Net carbon dioxide measurement on intact leaves of cogon obtained from various parts of the country was conducted using a specially designed, well illuminated, adequately ventilated, and temp.-regulated chamber. Highest net photosynthesis among leaves in a tiller was obtained from young fully expanded leaf. Net photosynthesis of different cogon transplants was significantly different. Batangas clone has the highest net photosynthesis (48.03 mg CO_2/dm^2/hr). Plants with high net photosynthesis have also significantly higher dark respiration. Light saturation was attained at 80,000 lux by plants with high, intermediate and low net photosynthesis. However, net photosynthesis of the clone with low net photosynthesis is always lower at all light intensity levels than the clone with higher net photosynthesis. A significant positive correlation between net photosynthesis and total tillers produced was also observed. - Authors' Abstract

582.752.3:581.412
Wood - Structure.
Wood - Physical properties.

11. Wood structure, characteristics, and properties of six Philippine meliaceae species. R. M. Silva and B. A. Lomibao (FORPRIDECOM, College, Laguna). *Philippine Lumberman*, Dec. 1972, v.18, no.12, p.8, 10, 12, 14, 17. illus. 18 refs.

The species studied were: kato *(Amoora aherniana* Merr.), salakin [*Aphanamixis cumingiana* (D. DC) Harms], maranggo [*Azadirachta excelsa* (Jack) Jacobs], miau *(Dysoxylum euphlebium* Merr.), malaaduas *(D. klemmei* Merr.) and kayatau *(D. turczaninowii C. DC)*. Except kato wood which is straight-grained to slightly interlocked, woods of other species are cross-grained. Woods of miau, malaaduas, kayatau and salakin are fine-textured but woods of maranggo and kato are coarse-textured. Their weights when air-dried ranged from comparatively light in maranggo with sp. gr. of 0.568 to heavy in kato with 0.804.

Kato has abundant reddish or yellowish deposits in vessels and without terminal parenchyma, while maranggo has semi-ring porous wood, black gummy deposits in vessels but with terminal parenchyma. Both maranggo and kato have rhomboidal crystals in parenchyma strands; however, the former has non-septate fibers while the latter has few septate fibers. Rays of maranggo are mostly heterocellular multiseriate of 2-3, but up to 4 cells wide. On the other hand, the rays of salakin are mostly uniseriate with few biseriate but up to 3 cells wide. Salakin is characterized by the occurrence of terminal parenchyma, presence of silica inclusions in axial parenchyma, fibers and rhomboidal crystals in chambered parenchyma strands. Kayatau is slightly vasicentric, oliform to confluent parenchyma and with terminal parenchyma. Miau has mostly heterocellular uniseriate to biseriate rays, while malaaduas has mostly heterocellular uniseriate to multiseriate, mostly 2 cells but up to 3 cells wide.

582.982:581.145
Gourds.

12. Modification of sex expression in Luffa acutangula with foliar sprays of 2-chloroethylphosponic acid. F. C. Manuel. *Kalikasan*, 1972, v.1, no.1, p.1-6. tables. 21 refs.

Studies showed that treatment of ribbed gourd (*Luffa acutangula* Roxb. cv. Zambales Native Long) with 2-chloroethylphosphonic acid (2-CEPA) at the 2 leaf stage altered the sex expression pattern of the plant towards more femaleness. Reductions in the number of nodes to first flower, to first female flower as well as to number of male flowers preceding or intervening between the first female and a second on the same plant axis were observed. Also, 2-CEPA elicited transitory inhibition of extension growth, stimulated profuse branching as an apparent consequence of its relieving action on apical dominance, and induced changes in leaf shape and size.

ZOOLOGY

593.93:591.9
Starfishes.

13. Observations of the Crown of Thorns starfish in Dumaguete Bay. Bruce D. Beran. *Silliman Journal*, Third Quarter 1972, v.19, no.3, p.381-386. map, table. 5 refs.

Surveys made from Oct. 1971 to Aug. 1972 showed that the number of Crown of Thorns starfish (*Acanthaster planci*) greatly increased between Jan. and March. Damage to the coral reef became apparent. An alarming increase of large *A. planci* was noted in April. By midyear, 60-70% of the coral reef were damaged. *A planci* attacked mostly rose and staghorn corals while brain and fine corals remained uneaten. Spearing the starfishes and burying them in the beach were found effective in controlling their population, thus permitting the regeneration of the damaged coral. Furthermore, regular removal of the starfish during its pre-reproductive season and killing them individually during heavy infestation are recommended.

595.421:636.2(914)
Cattle ticks.

14. Biological and ecological studies of cattle ticks in the Philippines. B. L. Cariaso and R. G. Moreno (College of Agriculture, UPLB, College, Laguna). *Proceedings of the Ninth Annual Convention of the Philippine Society of Animal Science,* Nov. 9-10, 1972. 9p. graph, tables. 15 refs.

Survey collections involving all parasitic stages of the cattle tick were conducted in representative cattle ranches in 25 provinces from April 1971 to June 1972 to determine their identity, distribution and seasonal incidence. Seed ticks in College (Laguna) reached their peak abundance in April decreasing in May and of lesser frequency in July. Their population density increased slightly in Sept. but dropped abruptly in Oct. and March. The seasonal periodicity of the larvae was affected by rainfall, temperature and relative humidity. However, in Zamboanga del Sur and Palawan, population densities were affected by adequate coconut cover, absence of environmental manipulation and inadequate spraying of animals. Nymph and adult ticks were observed to increase breeding activity during Dec., Jan., April and May. The ticks preferred to stay on the udders, flanks and belly of cattle and the larvae, in inner part of the ears. *Boophilus microplus* (Canestrini) is the only specie of tick attacking cattle in the Philippines. Its developmental stages from egg to adult are discussed in detail.

595.733(914)
Dragonflies.

15. The Libelluline dragonflies in Bohol, Cebu, and Leyte. Cristobal G. Plateros. *Philippine Scientist,* 1972, v.9, p.51-55. 13 refs.

The body coloration and forms, wing venations and colors, genitalia, and flight and oviposition habits, of the following species of dragonflies are described in detail: *Orthetrum sabina sabina, O. testaceum testaceum, O. pruinosum clelia, O. chrysis, Diplacian bolivari, Cratilla linata, Lathrecista asiatica, Potamarcha obscura, Diplacodes trivialis, Crocothemis servilia servilia, Neurothemis terminata terminata, N. ramburi ramburi, Trithemis aurora, T. festiva, Zyxomma obtusum, Tholymis tillarga* and *Pantala flavescens.* Recorded for the first time in the Philippines, at least in Bohol, Cebu and Leyte, is *O. chrysis.*

595.77:591.5
Oriental fruit flies.

16. Effects of soil texture, moisture and compactness on pupal recovery and emergence of the oriental fruit fly Dacus dorsalis Wendel (Diptera, tephritidae). Alfonso S. Boydon (Araneta University Foundation, Malabon, Rizal). *Araneta Research Journal,* July-Sept. 1972, v.19, no.3, p.177-192. tables. 6 refs.

Results of the experiment conducted at the Araneta University Foundation showed that texture, moisture and compactness of the soil affect the pupal development of Oriental fruit flies. Based on the various degree of compactness of the different soil media, the deepest pupation was observed at normal pressure of 0-psi with an average depth of 3.39 cm, followed by one-psi with 3.05 cm, 3-psi with 2.6 cm and 5-psi with 1.48 cm in that order. The most favorable compactness for adult emergence was at one-psi with 85%. The highest pupal recovery was observed at one-psi with an average of 94% in all media. On the effect of soil texture, 6% moisture has the highest percentage emergence of 85.4%, followed by 9, 12, 15, 3 and 18% with average emergences of 85, 81.7, 81, 80 and 76%, respectively.

Controlling the flies during the pupal stage is possible thru alteration of environmental conditions particularly the physical condition of the soil.

595.77:591.543
Oriental rat fleas.

17. Seasonal fluctuations of adult Xenopsylla cheopis (Rothschild) in the ports and airports of Manila. J. C. Castillo and J. C. Azurin (Bureau of Quarantine, Manila). *Philippine Journal of Public Health,* Oct.-Dec. 1972, v.18, no.2, p.154-159. graphs. 4 refs.

Studies revealed that the population of adult *Xenopsylla cheopis* fluctuated greatly in April and March and least in Aug. The fluctuation of these fleas was related to climatic factors, such as temperature, relative humidity and rainfall. Further studies are recommended to validate the present findings.

595.771:576.89
Mosquitoes as carriers of infection.

18. Anopheles litoralis King, recently incriminated malaria vector in Tatalan, Sulu. Felipe P. Catangui, Raymond T. Collins, Felipe Kalaw and Avelino del Rosario (Malaria Eradication Service, Dept. of Health, Manila). *Acta Medica Philippina,* ser.2, Oct.-Dec. 1972, v.8, no.4, p.136-144. tables, illus. 8 refs.

Studies revealed that *Anopheles litoralis* King is the only Anopheline species encountered in Tatalan. Based on the 2 adult species found positive for sporozoites, *A. litoralis* was confirmed to be a malaria vector which tends to bite more on animals than man. However, females were the ones mostly infected. The biting peak of *A. litoralis* was from 8:00 to 9:00 p.m.

598.112:591.55
Lizards - Habits and behavior.

19. Patterns of display and social structure of the 'flying' lizards (Draco volans: Agamidae). Rodolfo B. Gonzales (Silliman University, Dumaguete City). *Silliman Journal,* Third Quarter 1972, v.19, p.364-380. graph, table, illus.

Six distinct display patterns of a group of 17 flying lizards, such as assertion, threat, challenge, courtship, rejection and submissive posture, are described. The social structure of the group was based on the dominance-subordinate relationships among the members. The dominant males accounted for the majority of aggressive displays. The subordinate individuals either retreated or decreased their activities in the presence of the dominant ones. However, in the presence of conspecific strangers, as well as lizards of different species, they behaved aggressively. Only one successful mating was recorded from several attempts by adult males. The probable ecological significance of the social behavior of the lizards in nature is discussed.

599.323:591.134
Mammals, Weight and measurements of - Rats.

20. A study on the adaptation of field rats to laboratory conditions. I. Litter size and the sex ratio in Rattus rattus mindanensis (Mearns). F. I. S. Medina, C. L. Madriaga, V. P. Evarretta, J. S. Gregorio and S. P. Eslit (Philippine Atomic Energy Commission, Quezon City). *Animal Husbandry and Agricultural Journal,* Aug. 1972, v.7, no.8, p.14, 16. tables.

Results showed that the average size of litter of captive *R. r. mindanensis* is 5.083 ± 1.85 ranging from one to 10 pups/litter and that the sex ratio of the same colony is 139 males to 100 females.

599.323:591.134
Mammals, Weight and measurements of - Rats.

21. A study on the adaptation of field rats to laboratory conditions: II. Weaning weights of Rattus rattus mindanensis (Mearns). F. I. S. Medina, C. L. Madriaga, V.P. Evarretta, S. P. Eslit and J. S. Gregorio (Philippine Atomic Energy Commission, Quezon City). *Animal Husbandry and Agricultural Journal,* Sept. 1972, v.7, no.9, p.20. 5 refs.

Results indicated that the mean weaning weights of *R. r. mindanensis* (Mearns) are 30.37 ± 0.82 g for male and 29.24 ± 0.73 g for female. There is no significant correlation between litter size and the weaning weights. The most ideal weaning weight for breeding stock is 28-30 g.

MEDICAL SCIENCES

ANATOMY

611.81-019(=914)
Sella turcica.

22. The size of the sella turcica of Filipino children. Gloria Benipayo-Valencia, Mirla Manito and Lina Baraceros. *Philippine Journal of Pediatrics,* Aug. 1972, v.21, no.4, p.158-164. tables, diagr. 7 refs.

The study is based on the skull x-rays of 500 normal children, aged one mo.-6 yrs or more. It was noted that the sellae of the females between 2 and 6 yrs old were significantly deeper than those of the males, probably due to the slightly faster rate of development of the sella in the females. No significant correlation was observed between the anteroposterior diameters of the sella turcica and that of the skull.

PHYSIOLOGY

612.015(=914)
Polymorphism (genetics).

23. Biochemical polymorphism in man (Filipino population). 4. Four erythrocytic enzyme systems: Phosphoglucomutase, lactate dehydrogenase, 6-phosphogluconate dehydrogenase and adenylate kinase. P. S. Bayani-Sioson (College of Dentistry, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, July-Sept. 1972, v.8, no.3, p.93-98. tables, diagr. 27 refs.

Four erythrocytic enzyme patterns of 67 male and 23 female apparently healthy adults (average age of 30) were determined by standard methods with slight modifications. Phosphoglucomutase type I was the most frequent type encountered, while lactic dehydrogenase designated as fast type occurred in 95% of the subjects. Type A of 6-phosphogluconate dehydrogenase occurred in all cases. Adenylate kinase types 1 and 2-1 were also found, but type 2 did not occur in any subject. No difficulty was encountered in typing the erythrocyte enzymes.

612.015.6 577.15
Nicotine acid - Biosynthesis.
Escherichia coli - Enzymology.

24. Mechanism of conversion of extracellular niacinamide to niacin by Escherichia coli. Domingo T. C. Ngo and Valorie C. Fullon (College of Medicine, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, Oct.-Dec. 1972, v.8, no.4, p.152-159. graphs, tables, illus. 7 refs.

Niacinamidase, the enzyme for the conversion of niacinamide to niacin in *Escherichia coli,* is an intracellular enzyme, which is specifically located within the cytoplasm. It is not excreted into the growth medium. The enzyme has a specific activity of 3.8 x 10^{-3} units/mg protein and is synthesized at relatively constant levels by the cells under all conditions (a "constitutive" enzyme). Niacinamidase, with a Michaelis constant below 5.5 x 10-6 M, has a very high affinity for the substrate. A mechanism for the conversion of niacinamide to niacin in the growth medium by *E.coli* is proposed. - Authors' Summary

612.664.015.6(=914)
Milk, Human - Analysis.
Riboflavin deficiency.

25. Studies on breast milk of some normal Filipino mothers. II. Normal milk riboflavin levels. Rosita D. Salud, Lourdes A. Salamat, Benigna V. Roxas, Eladio M. Tinio and Miriam D. Kuizon (National Institute of Science & Technology, Manila). *Philippine Journal of Nutrition,* July-Sept. 1972, v.25, no.3, p.183-190. tables. 17 refs.

Milk samples taken during different stages of lactation from 33 apparently normal mothers mostly from the low-income group were analyzed for riboflavin. The results are suggestive of the poor nutritional status of the mothers as reflected by the generally low milk riboflavin levels. Milk taken during the first mo. of lactation gave an overall mean of 18.4 mcg and full lactation milk, 16.35 mcg. It was noted that the stage of lactation had no effect on the riboflavin level of human milk. Also, no statistically significant correlation was found between milk and urinary riboflavin/100 ml, whereas, there was significant correlation between milk riboflavin expressed in mcg/100 ml and urinary riboflavin excretion expressed on a one-g creatinine basis.

DIETETICS

613.2:308(=914)
Dietary studies.

26. Dietary patterns, food habits and preferences of Filipino athletes of the Sixth Asian Games, 1970. Norma M. Villegas and Felicidad V. Velandria (National Institute of Science & Technology, Manila). *Philippine Journal of Nutrition,* Oct.-Dec. 1972, v.25, no.4, p.237-250. tables. 8 refs.

The diet history, food preferences, food beliefs, acceptability of menu items, snack habits and food services of 31 athletes quartered while on training at the Rizal Memorial Stadium (Manila) were gathered for a period of one mo. The dietary pattern was 3 meals/day and usually one snack with approximately 3300 cal/day. Recommendations for the proper diet of athletes are given. The athletes' preferences for menu and food items are also tabulated.

613.2:308(=914)
Dietary studies.

27. Filipino athletes: Their dietary intake and total energy expenditure. Ma. Patrocinio E. de Guzman, Sheila R. Dominguez, Valentino F. Santos, Violeta Lavides and Josefina M. Kalaw. *Philippine Journal of Nutrition,* Oct.-Dec. 1972, v.25, no.4, p.225-236. tables. 25 refs.

The measurement of energy and dietary intakes for 7 days of 6 male and 3 female athletes was evaluated. Results showed that the percentage of protein and fat in both the pre-training and training diets of the athletes was found to be comparable with the Recommended Dietary Allowance of Filipinos for the 16-20-yr-old males. The percentage of carbohydrate was within the normal range (40-60%). The difference between the mean energy expenditure of 3181 kcal/day and the mean intake of 3007 kcal/day obtained was insignificant.

613.22:612.398
Dietary proteins. Food - Composition.

28. An evaluation of MCM as a high protein food. Angelina Alcaraz-Bayan, Josefina A. Magbitang, Dulce Nagtalon and Felicidad Velandria (National Institute of Science & Technology, Manila). [Manila, 1972]. 13p. tables. 16 refs. Mimeographed. (Paper presented at the National Science & Technology Week Symposium, July 10-16, 1972, Manila); *Philippine Journal of Nutrition,* July-Sept. 1972, v.25, no.3, p.191-202.

MCM is a high protein food formulation composed of 80% mungbean flour, 15% coconut flour and 5% skim milk solids. Evaluation tests conducted on 8 male and female children, 1-3 yrs old, showed that the formulation is acceptable, well tolerated and promotes growth response comparable to that of animal food protein.

PUBLIC HEALTH

614.71:551.510.4
Air pollution.
Automobile engines - Exhaust gases.

29. An investigation on the composition of motor vehicle exhaust emissions. Clarita C. Centeno and Celina F. Pacis (Bureau of Research and Laboratories, Dept. of Health, Manila). *Philippine Journal of Public Health,* Oct.-Dec. 1972, v.18, no.2, p.160-176. graphs, tables. 22 refs.

Air pollutants originating from motor vehicle exhaust were studied. CO was found to be the chief pollutant, produced in extremely high concentration in all driving conditions particularly during idling and deceleration. During acceleration, the concentration of nitrogen oxide emitted significantly increased. The emissions of NO_2, aldehydes and SO_2 were found to be insignificant in concentration. The concentration of CO_2 was found to be extremely high, however, it is not considered a true pollutant.

PHARMACY. PHARMACOLOGY

615.3:616-06
Drug therapy - Adverse effects.

30. Epidemiology of adverse drug reaction in a General Hospital. Benigno F. Agbayani, Fernando S. Sanchez and Florencita L. Arenas (Philippine General Hospital, Manila). *Journal of the Philippine Medical Association,* July 1972, v.48, no. 7, p.327-346. graph, tables. 21 refs.

The method of active surveillance was used in the detection of untoward reactions to drugs in 1561 patients seen at the Philippine General Hospital. The most commonly used drugs were Ferrous sulfate, Penicillin, Digitoxin, Aspirin, Ergotrate and Streptomycin. Of the 1561 patients, 88% developed mild and 12% moderate reactions. Majority of the reactions were attributed to side effects, allergy and toxicity. The most frequent manifestations were referrable to the gastrointestinal tract and the cutaneous membrane. The highest rate of adverse reaction was noted with methotrexate, and among patients in the radiologic service. It was noted that the reaction rate was significantly higher in females than males, and in those with a history of allergy in the family.

615.32
Botany, Medical.
Bacteria - Resistance and sensitivity.

31. Anti-bacterial properties of mangga and kalamansi. Estelita H. Fernando. *Philippine Educational Forum,* Dec. 1972, v.21, no.3, p.66-75. tables. 6 refs.

Microbial tests on the alcoholic extracts of mango and kalamansi juice revealed that mango has antibacterial property against *Staphylococcus aureus,* but no antibacterial activity was observed for kalamansi. The antibacterial property in mango may be attributed to the presence of phenols and tannins. The mango extract incorporated with cold cream in dilutions of 1:1 to 1:3 indicated no inhibition of *S. aureus.*

DISEASES. PATHOLOGY

616-056.3-097
Allergens.

32. Studies on mosquito allergy: The intradermal test reactions to mosquito antigens. Benigno F. Agbayani, Lothar Lissner and Carmelita Frondoza (College of Medicine, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, July-Sept. 1972, v.8, no.3, p.87-92. tables. 20 refs.

Intradermal tests with physiologic salt solution and mosquito antigens were done on 65 subjects known to be normal, mosquito allergic, with major allergic diseases and with non-allergic diseases. Significant skin test reactions were noted in cases with mosquito allergy and those with major allergic disorders. Mixed antigens consisting of both male and female mosquitoes produced more and larger skin test reactions among the mosquito allergy subjects than those with major allergic disorders. No significant difference in weal diameters was noted with the use of either female or male antigens.

616.155.2
Blood platelets.

33. The normal platelet count in full term Filipino infants during the first three days of life. Sonia Abrio-Lopez, Leonardo Naranjilla and Carlos B. Ferrer. *Philippine Journal of Pediatrics,* Aug. 1972, v.21, no.4, p.165-173. tables. 16 refs.

The data were obtained from 237 healthy newborns. By the direct method, the normal range of platelet values during the first 3 days of life was 110,000-500,000 and by the indirect method, 120,000-600,000. No changes in platelet values were noted from day to day during the first 3 days of life for both methods, however, the afternoon counts were found higher than those in the morning. No significant difference in values obtained by both methods was noted between sexes.

616.2-053.1/.2:616-074
Respiratory tract infections - Occurrence.

34. Laboratory studies on respiratory infections in infants and children in Negros Oriental. George W. Beran, Francisco F. Macasaet and Paz V. Enojo (Silliman University Medical Center, Dumaguete City). *Acta Medica Philippina,* ser.2, Oct.-Dec. 1972, v.8, no.4, p.160-166. tables. 13 refs.

One hundred sixty one pediatric patients and 141 control infants and children were studied. The 8 viruses recovered from oropharyngeal swabs of sick children were all enterovirus strains. Serological findings indicated that antibodies against parainfluenza and reoviruses were common in the subjects and among the school children who had been sampled in 6 Dumaguete City schools. Attempts to culture *Mycoplasma* infections in acute respiratory diseases were unsuccessful.

616.33-007:616-053.1
Stomach rupture.
Infant, Newborn, Diseases - Etiology.

35. Rupture of the stomach in the newborn: Report of a case and review of literature. Mario C. Alix and Vivina C. Chiu. *Philippine Journal of Pediatrics,* July-Aug. 1972, v.21, no.4, p.181-183. illus. 3 refs.

A fatal case of rupture of the stomach in a 4-day-old newborn male is reported. Operative findings revealed generalized peritonitis, massive mesenteric thrombosis with beginning gangrene of the small intestine and one-inch tear of the stomach at the lesser curvature near the cardia. Biopsy revealed focal necrosis with fibrinous exudate and peritonitis, but there was no evidence of malignancy in all the sections. A review of literature indicates that congenital weakness of the musculature of the stomach seems to be a major cause of rupture of the stomach in the newborn, but second only to perforation of acute peptic ulcer.

616.348-089(=914)
Megacolon - Surgery.

36. Short segment Hirschsprung's disease in consecutive cases among Filipinos. Roman S. Ibay, Jr. *Philippine Journal of Pediatrics,* July-Aug. 1972, v.21, no.4, p.153-157. graph, table, illus. 7 refs.

Twenty cases of Hirschsprung's disease classified into high and low varieties are discussed. Only 25% had long aganglionic segments which required abdomino-perineal operation. In Filipinos, puborectalis sectioning, rectal myectomy and internal sphincterotomy effected immediate good results in 80% of the low level cases. No case has so far required pull-through procedure.

616.379-06:616-053.2(=914)
Diabetes mellitus, Juvenile - Complications.

37. **Juvenile diabetes mellitus among Filipinos. V. Behavioral problems and mental retardation in patient with repeated ketoacidosis.** Carmela C. San Diego, Manuel Posesion and Cosme R. Cagas. *Philippine Journal of Pediatrics,* July-Aug. 1972, v.21, no.4, p.174-180. illus. 22 refs.

A case of severe diabetes in a 14-yr-old boy is discussed. It was found that the psychological aspect of the case which was due to poor home environment contributed significantly to the severity of the disease. Whether the repeated ketoacidotic episodes with or without coma would have been sufficient cause for the psychological and mental difficulties of the patient is a possibility.

616.379-074
Glucose tolerance test - Standards.

38. **Standardization of the oral glucose tolerance test.** Ricardo Fernando (Mary Johnston Hospital, Manila). *Proceedings of the Philippine Society of Endocrinology and Metabolism,* 1972, no.4, p.41-42.

Guidelines on the preparation of patients for testing, proper handling of specimens, different chemical methods for blood sugar determination and the different criteria for the diagnosis of a positive glucose tolerance test are given.

616.379-074:616-053.2(=914)
Diabetes mellitus, Juvenile - Diagnosis.

39. **The diagnosis of juvenile diabetes mellitus.** Cosme R. Cagas (College of Medicine, University of the Philippines, Manila). *Proceedings of the Philippine Society of Endocrinology and Metabolism,* 1972, no.4, p.37-40. 10 refs.

It is suggested that diabetes mellitus among Filipino children is not rare. There are 3 forms of the disease as it occurs in children and adolescents, namely a ketoacidotic-prone group that is insulin-dependent and ketoacidotic-resistant group that needs insulin at least initially. These forms are diagnosed by blood sugar and urine sugar determinations. The mild form that is treatable with diet alone or in combination with oral hypoglycemic agents is diagnosed by the glucose tolerance test. The high familial incidence necessitates more extensive case finding among relatives.

616.44-07(=914)
Thyroid diseases - Diagnosis.

40. **^{131}I-L Triiodothyronine resin uptake in Filipino patients.** Leland S. Villadolid and Emilie R. Navarro (College of Medicine, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, April-June 1972, v.8, no.2, p.61-64. graphs. 16 refs.

A modified method for measuring the degree of saturation of thyroxine-binding globulin using ^{131}I-labelled triiodothyronine and an ion exchange resin was applied to some Filipino subjects with normal and abnormal thyroid function. The method was found useful and reliable provided that it is carefully standardized and radioactive contaminant is checked for radio chemical purity. A good correlation between the T_3-resin uptake values and the clinical state of thyroid function were also obtained. In pregnancy or estrogen-treated patients, values were depressed to the hypothyroid level.

616.45-02:618.11-006
Cushing's syndrome - Etiology.
Ovarian neoplasms.

41. **Cushing's syndrome in adrenal rest cell tumor of the ovary: A case report.** Ofelia C. Castro, Thelma Linda S. Lamorena and Benjamin D. Canlas, Jr. (College of Medicine, University of the Philippines, Manila). *Proceedings of the Philippine Society of Endocrinology and Metabolism,* 1972, no.4, p.14-20. table, illus. 19 refs.

The case was seen in a 24-yr-old unmarried female which presented Cushing's features and virilization. Steroid studies with Dexamethasone and ACTH indicated an autonomous source of steroids. Surgery demonstrated an ovarian mass with cells similar to the fascicular layer of the adrenal cortex, confirming the diagnosis of adrenal rest cell tumor. Excessive steroid secretion disappeared postoperatively.

616.62-008.222:616-053.2
Enuresis - Physiopathology.

42. **Enuresis among school children in selected schools in Manila.** Rodrigo L. Farrales, Jr. (College of Medicine, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, Oct.-Dec. 1972, v.8, no.4, p.129-135. tables. 7 refs.

Results of the investigations made on 1863 school children revealed that at age 6, there were 14.1% male and 13.3% female enuretics. There were more male enuretics among the lower middle socio-economic class than in the middle and upper classes. Sleep walking, sleep talking, speech disorders and misbehavior at home were found to be more in enuretics of both sexes but passive-dependent behavior was seen more in male enuretics. A mean frequency of bedwetting was about 4 times a wk and that enuresis is more common among the first born and become less as birth order of the siblings increases.

616.927-07:616-08
Typhoid - Drug therapy.

43. On infectious diseases: 1. Diagnosis and treatment of typhoid fever. Elpidio L. Gamboa. *Filipino Family Physician* (Special Supplement), Oct.-Dec. 1972, v.10, no.4, p.1-2.

The primary procedures in the diagnosis of typhoid fever, such as Widal test and the demonstration of the causative *Salmonella* organism by blood, feces, urine and sternal marrow cultures are discussed. It was observed that Bactrim is better than Chloramphenicol for the treatment of typhoid fever. Corticosteroid was the most effective therapeutic agent for the cessation of intestinal hemorrhage. Intestinal perforation may be treated medically or surgically.

The clinical manifestations of typhoid fever are also given.

616.932.02
Cholera - Occurrence. Cholera - Etiology.

44. Cholera El Tor outbreak in Cabanatuan City. Eusebio L. Villanueva, Jr., Teresa C. Nano, Aurora Villarosa and Francisco Corpus. *Philippine Journal of Public Health,* Oct.-Dec. 1972, v.18, no.2, p.130-140. graphs, map, tables.

Observations showed that an outbreak of Cholera El Tor in Cabanatuan City reached its peak on the 31st wk. Approximately 30% of the cases were children aged below one yr-14 yrs and there was no sex predilection. Results of the bacteriological examination showed that water is the chief carrier of infection. Control measures were instituted by the Cabanatuan City Health Dept. and Nueva Ecija Provincial Health Office.

616.981.21(=914) 616-002.77(=914)
Streptoccocal infections. Rheumatism.

45. On infectious diseases: 2. Rheumatic diseases and Streptococcal infections in Filipinos. Ruben E. Siasoco. *Filipino Family Physician* (Special Supplement), Oct.-Dec. 1972, v.10, no. 4, p.3-5. tables.

Statistical analyses of cases with rheumatic disease showed a high incidence among the 15-30 yrs age group. Patients with active rheumatic disease have a mean titer of 418.16 units. Streptococcal infections were severe and highly antigenic with a mean titer of 228.6 units. Cervical adenitis, fever and leukocytosis were found to occur highly in streptococcal pharyngitis.

616.988
Arboviruses.

46. Arboviruses, meningitis and encephalitis. Eulalia L. Venzon, Lourdes Espiritu-Campos, Veronica F. Chan and Delia S. de Castro. *Acta Medica Philippina,* ser.2, April-June 1972, v.8, no.2, p.71-73. tables. 11 refs.

A study to correlate the role of arboviruses (arthropod-borne viruses) in clinically diagnosed cases of meningitis and encephalitis, excluding the suppurative and tuberculous types, was conducted in 1969-1971 from patients admitted in 8 hospitals in Greater Manila. 267 serum samples, 23 cerebrospinal fluids and a brain section were used as specimens in hemagglutination-inhibition tests and isolation attempts in suckling mice. Results gave 2% sero-positives to arboviruses represented by chikungunya group and 17% seropositives to arboviruses represented by Dengue II, Japanese encephalitis virus and West Nile groups. 18 possible isolates were found from the 67 cases of meningitis and encephalitis.

616.988.21(914)
Rabies - Diagnosis - Mammals.

47. Rabies survey studies in Philippine mammals other than dogs. George W. Beran, Osmundo Elviña, Romeo R. Moreno and Haydee L. Cañizares. *Proceedings of the Ninth Annual Convention of the Philippine Society of Animal Science,* Nov. 9-10, 1972. 17p. tables. 22 refs.

Of the 465 brain specimens of dogs studied, 32.5% were confirmed as rabid, while 8 of the 10 positive cases of rabies in 39 pet and domesticated animals were traced to exposure by rabid dogs. No infection, active, chronic, aborted or latent by rabies or an antigenically related virus was recognized on 1091 bats, 418 rats and 38 shrews. All evidences in this study pointed to the dog as the maintaining reservoir host of rabies.

616.995:615.777
Ascariasis - Drug therapy.

48. The efficacy of Pyrantel pamoate in the treatment of ascariasis (a comparative study with Piperazine and Tetramizole). Pedro P. Chanco, Jr., Eusebio Cabe, Jr. and Ma. Julieta Y. Vidad (Faculty of Medicine and Surgery, University of Santo Tomas, Manila). *Filipino Family Physician,* Oct.-Dec. 1972, v.10, no.4, p.1-14. graphs, tables.

One hundred thirty seven patients with ascariasis from Sapang Palay and the University of Santo Tomas Hospital were treated with Pyrantel pamoate, Piperazine and Tetramizole. Using the Direct Fecal Smear method, Pyrantel pamoate, Piperazine and Tetramizole were found highly effective in eliminating the parasite with 100, 70 and 80.82% efficacies, respectively. More side effects were observed with Piperazine than with Tetramizole, and practically none with Pyrantel pamoate.

616.995.1
Filariasis.

49. Filariasisin Sablayan Island, Juban, Sorsogon. Benjamin D. Cabrera (Institute of Public Health, University of the Philippines, Manila) and Francisco Valeza (Bureau of Disease Control, Dept. of Health, Manila). *Acta Medica Philippina,* ser.2, Oct.-Dec. 1972, v.8, no.4, p.145-151. graph, maps, tables. 10 refs.

Of the 757 persons examined, 86 (11.4%) were found positive for bancroftian filariasis. The prevalence rate in males was higher in females. The youngest positive male was 4 yrs old and the oldest was 87 yrs old, while the youngest positive female was 7 yrs old and the oldest, 71 yrs old. It was observed that the increase in prevalence rates was most evident after 15 yrs old and further increased after the age of 60 yrs. The highest microfilarial count in males was 430, and the highest count in females was 129. The average microfilarial count/positive in almost all age groups was higher in males than in females.

Aedes (Finlaya) *poecilus* was identified as the principal vector of bancroftian filariasis.

OPHTHALMOLOGY

617.713:615.31
Cornea - Drug effects.

50. Cysteine in experimental Pseudomonas corneal infection. Salvador R. Salceda and Esther A. Villamora (Philippine Eye Research Institute, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, July-Sept. 1972, v.8, no.3, p.99-103. graph, illus. 15 refs.

Studies on rabbits with experimentally produced corneal infection showed that cysteine did not prevent corneal necrosis. However, in lesions produced by bacteria-free filtrates, the anti-collagenase exhibited significant inhibition of the necrosis. In cases where the lesion was produced by broth cultures of *Pseudomonas aeruginosa,* the efficacy of cysteine was equivocal.

GYNECOLOGY

618.11:612.82
Ovary - Physiology.

51. Cortical evoked potential in normal and ovariectomized rats. Lauro O. Escobar (College of Medicine, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, July-Sept. 1972, v.8, no.3, p.104-109. tables, diagr. 9 refs.

The effect of ovariectomy on the evoked potential recorded from the primary sensory receiving area of the cerebral cortex in mature albino rats was studied. Results strongly suggest the sensitivity of the sensory cortex to changes in the level of circulating ovarian hormones. The lowered concentration of estrogens led to an increase in the threshold for evoked responses or a diminished excitability of the sensory pathway of the nervous system. This was reflected by a decrease in the amplitude of the 3rd negative wave of the cortical evoked potential.

VETERINARY MEDICINE

619:616.986.7:636.39(914)
619:616.986.7:636.3(914)
Leptospirosis - Goats.
Leptospirosis - Sheep.

52. Studies in Leptospirosis in the Philippines. VII. Serological incidence among goats and sheep. Teodulo M. Topacio, Manuel V. A. Bravo, Estela Famatiga and Fe Oliveros. *Proceedings of the Ninth Annual Convention of the Philippine Society of Animal Science,* Nov. 9-10, 1972. 14p. tables. 37 refs.

A total of 280 goats and 69 sheep from different localities were examined for leptospiral antibodies by the microscopic agglutination-lysis test. Results showed that 45 of the goats and 28 of the sheep were found positive mostly against *Leptospira javanica* and *L. pyrogenes,* respectively. Other serotypes giving a high percentage of reactions in both species were *L. icterohemorrhagiae*, *L. autumnalis*, *L. canicola* and *L. manilae*. Statistically higher incidence was observed among female than male goats. Serological incidence in sheep is quite high which however, seemed to be biased because of the locale where the sheep samplings were obtained.

619:616.995:615.777 636.7:616.995:615.777
Dogs - Diseases and pests - Therapeutics.
Pyrantel pamoate.

53. Clinical evaluation of Pyrantel pamoate in puppies. Enrique T. Carlos (Dog and Cat Hospital, Makati, Rizal) and Oscar R. Dizon (Dog and Cat Hospital, Manila). *Philippine Journal of Veterinary Medicine,* Dec. 1972, v.11, no.2, p. 156-159. 5 refs.

The efficacy of Combantrin (Pyrantel pamoate) as anthelmintic at the rate of 15 mg/ lb of body weight was tried in puppies of different breeds, sexes and weights aged 4 wks to 6 mo. Results showed an almost equal efficacy of the drug against ascarid, hookworm and ascarid-hookworm infections. Worms were expelled as early as 20 min after the administration of the drug. Only 2 puppies had slight side-effect of the drug by vomiting, which however easily recovered after the initial reaction.

619:616.995:636.2 636.2.089
Cattle - Diseases and pests.

54. The incidence of Eurytrema pancreaticum (Looss, 1907) in dairy cattle at the DTRI Farm. O. C. Martin (Dairy Training and Research Institute, College, Laguna). *Philippine Agriculturist,* June-July 1972, v.56, nos.1-2, p.25-34. tables, illus. 12 refs.

Forty-one out of the 77 animals studied were found infected with *Eurytrema pancreaticum,* 3 cases of which revealed a mixed liver and pancreatic flukes infection. Pathology and morphology of the parasite are described.

619:616.995:636.293 619:616.995:636.2
Helminths - Parasitic in livestock - Control.

55. Primer on gastro-intestinal roundworms of cattle and carabaos. Lino T. De Vera. *Animal Husbandry and Agricultural Journal,* July 1972, v.7, no.7, p.18-19, 22.

The characteristics, life cycle and pathogenesis and symptoms of the following 12 important species of gastro-intestinal roundworms found in cattle and carabaos, namely, *Haemonchus* sp., *Ostertagia* sp., *Mecistocirrus* sp., *Trichostrongylus* sp., *Cooperia* sp., *Nematodirus* sp., *Bunostumum* sp., *Neoascaris vitulorum*, *Strongyloides* sp., *Chabertia* sp., *Oesophagostumum* sp., and *Trichuris* are discussed. Mature stages of the different species are usually found in the abomasum, small and large intestines. Diagnosis includes fecal examination, fecal cultures and post-mortem examination. Prevention and control measures of the parasites are also given.

619:616.995-084:636.293
619:616.995-084:636-2
Fascioliasis - Veterinary.

56. Current prevalence of carabao and cattle fascioliasis in Visayas and Mindanao with emphasis on sensible control. Nestor Alonso. *Animal Husbandry and Agricultural Journal,* Sept. 1972, v.7, no.9, p.4, 6, 8, 10, 12. tables, illus. 10 refs.

Based on meat inspection statistics, results of the study showed that for a period of 11 yrs, the prevalent incidence of fascioliasis in the Visayas and Mindanao from a carabao population of 2,370,000 and cattle population of 1,070,000 is approximately 1,422,000 and 321,000, respectively. The method of prevention and control is thru the destruction of encysted metacercariae which can be accomplished by dipping harvested grasses in boiling water before feeding, zero-grazing or soiling, systematic deworming of primary hosts, good nutrition and proper education of farmers and livestock raisers.

619:636.8:615.782
Veterinary anesthesia - Cats.
Hypnotics and sedatives.

57. A preliminary study on the sedative effects of Rompun in cats. Alfredo Q. Lacuata and Daniel A. de Leon. *Philippine Journal of Veterinary Medicine,* Dec. 1972, v.11, no.2, p.134-146. tables. 22 refs.

Study showed that Rompun has a good sedative effect at a dose level of 0.05 ml/kg (1.0 mg/ kg). Onset of sedation varied from 30 to 90 sec and vomition time ranged from 1.5 to 18 min. Unusual effects observed were vomiting reflex, swallowing movements and slight salivation. Some animals given Atropine sulfate at 0.02 mg/ lb at least 30 min before Rompun administration still vomited. Rompun should always be accompanied by an antemetic to obviate unnecessary stress.

ENGINEERING

620.08:534.845.1
Sound absorbent materials - Testing.

58. Sound absorption of native materials. Miguel Montaner and Manuel Samson. *Acta Manilana*, ser.A, July 1972, no.9(15), p.21-35. graphs, table, illus. 2 refs.

Sound measurements using a 10-cm steel impedance tube were made on locally manufactured acoustic tiles, fiberboard and mats. No general conclusions were drawn from the results. It appeared that native mats placed in 2-3 layers especially when sandwiched between a perforated panel of masonite and plywood panel, or with air space behind, are good absorbers of sound energy in the middle and higher frequencies. Perforated fiberboards and perforated tiles were also found good sound absorbers.

621.315:518.5
Electric cables.

59. Notes on the sag stress analyses of electric transmission-line conductor-cables. Jose B. Abinoja. *Saint Louis University Research Journal*, Sept.-Dec. 1972, v.3, nos.3-4, p.555-635. flowcharts, graphs, illus. 3 refs.

The basic underlying principles of sag-stress analyses in order to pass on to practical working equations are reviewed. Also, the analyses-procedures, with due consideration of the design requirements, meeting maximum loading and sagging conditions and a set of workable computer programs for facilitating the numerical calculations involved in the analyses are presented.

621.798.1:631.565 633/635:621.798.1
Containers (for shipping). Fruit handling.
Vegetable handling.

60. Shipping containers for fruits and vegetables. F. M. Lauricio (FORPRIDECOM, College, Laguna). *Forpride Digest*, Oct.-Dec. 1972, v.1, no.4, p.31-39. tables, illus.

A survey was made on the kinds of fruits and vegetables marketed, kind and quality of containers used and the methods of packing, shipping and handling them. Different designs and styles of containers were fabricated and improved to minimize damages suffered by the containers and contents. Results showed that properly designed shipping containers reduced marketing losses by 10%. Further research and development to improve suitable shipping containers made out of local materials are recommended.

622.274.54.01
Mining engineering.

61. Sand box model at Philex. N. S. Retardo and S. R. Aduan (Philex Mining Corp., Pasig, Rizal). *Philippine Mining Record*, Nov. 1972, v.6, no.12, p.10-15. illus. 5 refs.

The model was constructed using as a guide the model discussed in an article by R. J. McCormick with renovations suited for Philex block caving operations. It was constructed in scale representing one slusher line of a standard Philex block. To some extent, it might also be used to represent the entire ore body by grouping 4 adjacent drawpoints to form as it were individual blocks in the model. Although it has limitations, it attempts to show how materials react and flow when pulled from below. The series of tests made showed that sand box model is a very useful tool for interpreting things that can happen to the ore as it comes from the column to the drawpoint, which cannot be seen when a block is in operation.

622.341:621.775
Iron ore treatment - Pelletizing.

62. General testing procedures for pelletizing Iron Ore Pellet Corporation of the Philippines. Oscar O. Yu (Pellet Corp. of the Philippines, Makati, Rizal). *Philippine Mining Record*, Oct. 1972, v.6, no.11, p.13-14, 16, 24, 26-27. 4 refs.

Briefly discussed are the general testing procedures, such as tests on concentrate, green balls, and pellets, laboratory balling procedure and Bentonite evaluation. The methods are used to determine the specifications relating to the physical quality of some natural ores.

622.348:622.22(914)
Nickel deposits - Philippines.

63. Development of the Surigao Nickel Project. Patrick T. O'kane (Surigao Nickel Project, Marinduque Mining & Industrial Corp., Makati, Rizal). *Mineral Engineering Magazine*, Jan.-Feb. 1972, v.23, no.3, p.19-32. maps, tables. 3 refs.; *Philippine Mining Record*, Sept. 1972, v.6, no.10, p.27-32.

The 4-phase development program of the Surigao Mineral Reservation is being undertaken by the Marinduque Mining and Industrial Corp. The total land area of the project is about 40,000 ha., with Nonoc Island being the most important economically. Extensive test pitting and drilling over 2400 ha. in Nonoc revealed 75,000,000 DMT of ore reserves, analyzing 1.22% Ni, 0.1% Co and 38.4% Fe based on a cut-off grade of 0.9% Ni. The plant is being designed to process 3,500,000 DMT of ore/yr, which is estimated to yield approximately 68,400,000 lb pure refined Ni annually. Feasibility studies showed the applicability of the Sheritt Process in the recovery of Ni from the Nonoc deposits. The detailed engineering phase of the project is about 25% complete, while the site development in Nonoc is essentially complete.

624.159.1.051(914)
Foundations.

64. Selection of foundation scheme for multi-story buildings in Manila and environs. Salvador F. Reyes (College of Engineering, University of the Philippines, Quezon City). *Philippine Architecture, Engineering & Construction Record,* Aug. 1972, v.19, no.5, p.19-23. tables, diagr. 5 refs.

The subsurface conditions in the Greater Manila Area and the procedures for selecting foundation schemes suitable for various typical conditions are reviewed. The state-of-the-cut of designing building foundations is such that with reliable soil parameters, safe and economical substructures may be routinely designed for dead and live loads. Although no analogous procedures are available for quantitatively accounting for seismic loads, qualitative analyses should be undertaken to provide adequate resistance to earthquake damage.

626.81 631.67
Water supply. Irrigation water.

65. Preliminary water resources investigation of La Carlota Mill District. Mario P. Sandoval (Philippine Sugar Institute, Quezon City). *Sugarcane Farmers Bulletin,* Sept.-Oct. 1972, v.7, no.2, p.7-13. maps, table, illus.

Geological mapping, well inventory and irrigation facilities of La Carlota mill district were investigated. The sugar central district utilizes water from Najalin and Antipolo Rivers and streams of Bungahin, Camansi, Haguimit, Ayungon and Taboda Rivers. These resources also supply most of the water for irrigation. Deep wells generally supplement the water derived from streams but is occasionally the only source of water for irrigation. Wells were drilled to depths ranging from 250 to 700 ft, pumping the water into the irrigation canals from where the water is sucked by another pump to be discharged through overhead sprinklers. These surface water resources if properly developed could irrigate most of the sugarcane fields at the foot of Mt. Canlaon.

The presence of thick alluvial deposits and some reworked pyroclastic rocks in the district promises the possibility of undertaking large scale ground water development. Some studies and projects are recommended to complete the hydrogeological investigation of the district.

AGRICULTURE AND FORESTRY

631.47:517.94
Soil profiles - Mathematical models.
Regression (statistics).

66. A regression study of percent organic carbon as a soil profile depth function. W. R. Philipson, M. F. Layese and J. F. Derting. *Philippine Agriculturist,* Oct.-Nov. 1972, v.56, nos.5-6, p.206-215. tables, illus. 8 refs.

Linear and nonlinear regression equations for organic carbon from 6 soil profiles representing 6 series of the suborder Ustersts were derived. Comparisons of the best-fit equations indicate that different series within the same family of a subgroup and, by implication, different pedons within the same series exhibit similar patterns of organic carbon distributions. Results suggest that profile distributions of organic carbon could provide one additional criterion for soil correlation, and organic carbon in series profiles could be reliably predicted by regression equations, characteristic of the series, with depth as the only independent variable.

631.563:635.62
Vegetables - Packing. Packaging materials.

67. The effect of packeting materials and storage conditions on the vigor and viability of squash (Cucurbita maxima Duch.), patola (Luffa acutangula Linn.) and upo (Lageneria siceraria Mol.) seeds. R. L. Villareal, J. B. Balagedan and A. D. Castro. *Philippine Agriculturist,* Aug.-Sept. 1972, v.56, nos.3-4, p.59-76. graphs, tables.

Squash, patola and upo seeds were packeted in paper (COIN), polyethylene (POLY) and cellophane-aluminum-polyethylene (CAP) and were stored in ordinary and air-conditioned-dehumidified rooms. CAP was found to be the best packet in maintaining the vigor and germination of seeds under the 2 sets of storage condition while POLY was found best only under the air-conditioned-dehumidified room. COIN was found inferior in preserving the quality of the seeds tested under ordinary room storage condition.

631.92
Plants, Effect of climate on.

68. Philippine crop occurrence according to coronas climate types: Preliminary results. W. R. Philipson, M. F. Layese and J. A. Mariano (Bureau of Soils, Manila). *Philippine Agriculturist,* June-July 1972, v.56, nos.1-2., p.48-50. tables. 7 refs.

A survey of 30 provinces investigated the extent to which patterns of rainfall distribution, as defined by the 4 coronas climate types, reflect patterns of crop occurrence. The data obtained from each province consisted of 1) the predominant, major and secondary crops on each soil unit, 2) the degree to which each soil unit is cultivated, and 3) the climate type under which each soil unit occurs. The findings point to a definite interaction between rainfall distribution and crop occurrence. Each coronas climate type exhibits characteristic crops as well as characteristic soil-cropping intensities of like crops. The applicability of the coronas system for partitioning cropping patterns is supported by the correspondence between trends in occurrence and the defined trend climate types.

632.38:633.526.1
Manila hemp mosaic virus.

69. Further studies on the host range of abaca mosaic and on the behavior of the virus in the various host plants. Emmanuel R. Tiongco and Martin S. Celino. *Araneta Research Journal,* Oct.-Dec. 1972, v.19, no.4, p.223-236. tables. 17 refs.

Using corn aphid [*Rhopalosiphum maidis* (Fitch.)] as a vector, 17 test plant species were experimentally infected with abaca mosaic virus. Of the species infected, tambalisa (*Cassia occidentalis* Linn.), kangkong (*Ipomoea aquatica* Forsk) and camote (*I. batatas* Linn.) were found susceptible with 100, 85 and 83% mosaic infections, respectively. The symptoms that virus induced in *C. occidentalis, I. aquatica* and *I. batatas* consisted of leaf mottling, pronounced vein clearing, puckering, leaf deformation and reduction in size, and marked stunted growth of the plants.

The highest percentage of infection in the recovery tests was obtained in *C. occidentalis* with 80%, followed by *I. batatas* and *I. aquatica* with 62.5 and 50.0%, respectively, indicating a successful recovery of the virus from the artificially infected plants.

Study on the properties of the abaca mosaic virus showed thermal inactivation (10-min exposure) of 45°-50°C and tolerance to aging *in vitro* of 12 hrs.

632.954:633.61
Herbicides. Sugarcane - Weed control.

70. Hints for effective use of herbicide for sugarcane, Angel P. Lobo. *Sugarcane Farmers Bulletin,* July-Aug. 1972, v.7, no.1, p.3-7. table, illus. 3 refs.

The herbicide users must be competent to formulate a sound spray program to avoid unsatisfactory results, such as crop damage and inferior control. Briefly discussed are the elements of a sound spray program, namely: 1) the herbicides and their properties which include the action of herbicides, species of weeds they can control, time and rate of application; 2) equipment and their proper operation which consist of sprayer, types of nozzle and their maintenance, and agitation and pressure; and 3) calibration which includes maintenance of pressure and pacing.

633.18:631.52
Rice - Varieties. Mutation (botany).

71. Induced mutants from Peta rice variety. P. B. Escuro and B. D. Ona (College of Agriculture, UPLB, College, Laguna). [Manila, 1972]. 6p. 1*l*. table. (Paper read at the National Science and Technology Week Symposium, July 10-16, 1972, Manila)

The agronomic performances of 14 promising mutants of Peta were evaluated. Results showed that the mutants have agronomically desirable traits. This indicates that irradiation with gamma rays is more effective in terms of number of desirable mutations recovered than either EMS or fast neutrons, and that varieties differ in their response to mutagenic agents.

633.18:632.954
Herbicides. Weeds - Control.

72. The effects of granular herbicides (Weedone, Machete and Treflan R) at different time of application on weed control, tiller production and yield of transplanted rice, variety IR20. Rodolfo R. Salcedo and Pedro L. Reyes. *Araneta Research Journal,* Oct.-Dec. 1972, v.19, no.4, p.261-290. graphs, tables. 18 refs.

Results of the study showed that all the 3 herbicides gave significant results when applied from 3 to 10 days after transplanting, the differences of which are statistically insignificant. However, Weedone is recommended for the control of sedges, Machete for grasses and Treflan R for broadleaf weeds. A further study is recommended on the effect of these herbicides to animal life, on the crop and on the soil, especially if herbicides were used every cropping season.

633.2:546.267 636.085:546.267
Forage plants - Analysis.

73. A study of the qualitative analysis of different species of forages for hydrocyanic acid. Armando A. Arago. *Araneta Research Journal,* July-Sept. 1972, v.19, no.3, p.193-205. table, illus. 7 refs.

Results of the analyses conducted on 70 different species of forages showed that almost all of the common feeds of Philippine animals contain hydrocyanic acid in variable amounts. The forages that gave positive, strong reaction for HCN are: Para grass, barit, Guatemala grass, Dallis grass, Lima bean, luya-luya, sorghum, acacia and pongapong. The remaining species showed a slightly positive reaction for HCN.

633.2:636.2.085(914) 636.2.085:633.2(914)
Pastures and meadows.
Feeding and feeding stuffs - Iodine content.

74. The Philippines best ipil-ipil pasture. Catalino C. Catanaoan. *Better Poultry and Livestock,* Aug. 1972, v.13, no.12, p.41-42, 44.

The ipil pasture as main cattle feed gave faster growth, healthier herd which are highly resistant to diseases and parasites, more superior quality of meat increased fertility and is simpler and more economical than other tropical grasses and legumes. However, observations showed minor problems, such as hairlessness and death of some of the calves which might be attributed to ipil forage being exclusively fed. Further study is recommended to solve the problem.

The best ipil pasture in the Philippines is found in barrio Paraoir, Luna (La Union).

633.2:66.014
Forage plants - Chemical composition.

75. Toxic factors and metabolic inhibitors in Philippine forages - their possible significance in animal production. M. S. Bañes, M. A. Chavez, P. L. Lopez, R. R. Lopez and O. M. Gatmaitan (College of Agriculture, UPLB, College, Laguna). *Proceedings of the Ninth Annual Convention of the Philippine Society of Animal Science,* Nov.9-10, 1972. 17p. graph, tables. 10 refs.

Results of the chemical analyses on 35 pasture crops which showed correlation with cricket performance fed on the same sample revealed the presence of oxalate, nitrate and tannin in all samples ranging from 3 to 10%, 0.09 to 5.06% and 0.78 to 5.6%, respectively, and prussic acid in 6 samples and alkaloid in 4 samples ranging from 16 to 243 ppm and 0.55 to 3.05%, respectively. Also, toxicity studies showed the potentiality of cricket as laboratory test insect after evaluation and elimination of a number of the common laboratory insects.

633.51:631.552 633.51:632.5
Cotton - Yield. Cotton - Weed control.

76. Response of cotton to different duration of weed control (variety Deltapine 16). Filomena F. Campos and Mauricio M. Disu (Central Luzon State University, Nueva Ecija). *CLSU Scientific Journal,* July-Dec. 1972, v.8, no.2, p.9-12. tables.

Results of the study indicated that weeding induced significant influence on the height of plants at maturity as well as in the yield performance of cotton. The plots that were kept weed-free from the 2nd wk up to the 10th wk produced significantly taller plants at maturity compared with the control plots. It was further observed that the number of harvestable bolls and the average yield/plot were significantly higher among weeded plots as compared with seed cotton yield on the unweeded plots.

633.51:631.81 633.51:631.552
Cotton - Fertilization. Cotton - Yield.

77. Effect of time and rate of urea application on the yield of cotton (Deltapine 16). F. F. Campos, Q. M. Aban and R. B. Pesebre (Central Luzon State University, Nueva Ecija.). *CLSU Scientific Journal,* July-Dec. 1972, v.8, no.2, p.19-22. tables.

Results of the study revealed that the different schedules of fertilizer application did not adversely affect the growth and yield performance of cotton plants. However, splitting the fertilizer application in 2 different stages of plant growth ($\frac{1}{2}$ at planting and $\frac{1}{2}$ at squaring) induces ralatively better growth and yield performance of the plants. It was also noted that the application of 90 and 120 kg/N/ha. induces beneficial effect on the growth and yield of cotton plants although the 2 levels of application did not differ significantly from one another.

633.51:631.81 633.51:631.552
Cotton - Fertilization. Cotton - Yield.

78. Effect of type of fertilizer and time of application on the growth and yield of cotton. R. S. Aquino and R. G. Arce (Central Luzon State University, Nueva Ecija). *CLSU Scientific Journal,* July-Dec. 1972, v.8, no.2, p.13-18. tables. 15 refs.

The time of fertilizer application did not induce any significant effect on the yield of cotton although the application of fertilizer at squaring stage or split application favored the development of sympodial stems. The rest of the characters studied did not show significant differences.

Results on the type of fertilizers showed that urea had a significant effect over ammophos and complete fertilizer on vegetative growth and yield of cotton. The fiber quality, however, was not influenced by the different treatments.

633.51:632.7
Cotton - Diseases and pests.

79. Cotton insect pests and their abundance in Central Luzon State University. Epifania Perez, Martin Guantes and Abdulla Al-Azawi (Central Luzon State University, Nueva Ecija). *CLSU Scientific Journal,* July-Dec. 1972, v.8, no.2, p.23-32. graphs, table. 7 refs.

Studies showed that the most damaging cotton insect pests were the sucking insects, leafminers, leaf-chewing insects, bollworms and predators. Among the sucking insects, *Empoasca biguttula* was the most destructive which stopped growth and eventually killed the plants during high infestation. The leafminer, *L. triarcha,* was occasionally found in leaves and not in considerable numbers. On the other hand, semilooper *Cosmophila erosa* and katylid *Phaneroptera furcifera* were the most damaging to leaves. The spiny bollworm *Earias cupreoviridis* was found infesting stem tips or buds from seedling stage to harvest and the cotton bollworm *Helicoverpa armigera,* the leaves, buds or bolls until harvest.

633.61:581.1 633.61:581.4
Sugar cane - Chemical composition.

80. Some leaf physiological and morphological characters associated to differences in net carbon exchange in sugarcane. Elpidio L. Rosario and Robert B. Musgrave. *Philippine Agriculturist,* Oct.-Nov. 1972, v.56, nos.5-6, p.168-180. tables. 34 refs.

Results of the study utilizing 17 morphological and physiological leaf characteristics gathered from 14 varieties of sugar cane showed that net carbon exchange (NCE) is highly correlated with protein, potassium and phosphorus contents/unit leaf area. Specific leaf weights (mg leaf tissue/unit leaf area) in fresh or dry basis were shown to be good indices of selection for high NCE responses. Sugar cane varieties possessing narrow, thick and erect leaf habits exhibited high capacity to fix CO_2.

633.61:631.52:632.4
Sugar cane - Disease and pest resistant varieties.

81. Reaction of sugar cane varieties to Philippine isolates of Colletotrichum falcatum Went. Hamiz Uddin Ahmed (Agriculture Div., Atomic Energy Centre, Ramna, Dacca-2, East Pakistan). *Philippine Agriculturist,* Oct.-Nov. 1972, v.56, nos.5-6, p.181-189. tables. 26 refs.

The pathogenecity of 13 Philippine isolates of *Colletotrichum falcatum* was tested on 28 varieties of sugar cane both in the laboratory and in the field using the plug method of inoculation. Results showed that Isolate A-1 was highly virulent than other isolates. The sugar cane varieties tested were more susceptible in the laboratory than in the field. CAC 57-13, PHIL 54-60 and CP 36-105 were resistant to all isolates of the fungus, while CAC 57-60, PHIL 56-76, PHIL 53-3, CO 453 and PR 980 were resistant only to most of the isolates. The other cane varieties tested were moderately susceptible. None was found immuned to attack by the causal fungus.

634.0.2:582.825:631.53 634.0.56:582.825
Forests and forestry - Cultivation.
Forest increment.

82. Fifteen-year growth and mortality of white lauan wildlings planted bare-root in Impalutao, Impasugong, Bukidnon. Cleotilde O. Penonia (Malaybalay Forest Experiment Station, Malaybalay, Bukidnon). Manila, Forest Research Division, Bureau of Forestry, Dec. 1972. 7p. 2*l*. tables. 2 refs. (Occasional paper no. 48)

Experiments showed the following results: 1) annual periodic rate of growth is faster at 0.60 m than in the 0.20 m height class; 2) growth percentage decreases as the initial height class increases but not exceeding 0.60 m class; 3) small wildlings had greater mortality than the large ones; 4) the use of bare-root white lauan wildlings for interplanting resulted to a high mortality rate of 70%, with the highest survival count at 0.40 m-height class and more at 0.70 m-height class; and 5) the crown classification of bare-root planting of wildlings in a mixed stand plantation of *Cryptomeria*, *Palaquim* sp. and Benguet pine showed that of the surviving trees, 33.30, 30.60, 19.40 and 16.70% were co-dominant, intermediate, dominant and suppressed, respectively.

634.0.2:582.825:631.552
Forests and forestry.

83. Regeneration, growth and yield of Philippine Dipterocarp forests.

F. O. Chinte. *Philippine Lumberman*, Oct. 1972, v.18, no.10, p.24-29. table. 26 refs.

Dipterocarp forest, which is the most important Philippine forest type, is found from the the beach to slopes of large mountains with an elevation of about 800 m above sea level. It has variable volume and distribution of trees among the diameter classes, 75-98% of which are of 50 cm and over.

The prominent species which regenerated the area after the removal of the original forest were *Macaranga*, *Homalanthus*, *Mallotus* and *Trema*. Those occurring in the pure stand were *Commersonia bartramia*, *Alphitonia philippinensis*, *Trichospermum discolor* and *Endospermum peltatum* which were mostly small-sized, short-lived and intolerant of shade. The Dipterocarps in cleared areas were overtopped by fast-growing secondary species. However, the growth of the latter eventually declined and the Dipterocarps became the dominant species with 26% increase in total stand volume in 14 yrs. Diameter and volume growths varied with diameter classes within species and a curvilinear relationship was obtained in the correlation analysis. The curve showed a maximum diameter and volume growth at different diameter classes of each species. Small trees produced more volume than big trees if the stand has the same density. Growth per cent in a residual Dipterocarp forest showed a negative correlation with tree diameter and basal area/ha.

634.0.3
Lumbering.

84. "Scooter" gravity yarding system.

German B. Arañez. *Philippine Lumberman*, July 1972, v.18, no.7, p.28-33, 36. illus. (Paper presented at the 12th Annual Convention of Philippine Lumbermen, June 23-24, 1972, Manila)

Gravity Yarding System (Scooter) is designed to work on uphill yarding areas and where sufficient line deflection can be achieved; yarding can be extended to 3000 ft distance. It is not applicable to downhill yarding. Application of the system to selective logging operation showed its advantages over the present yarding systems used in the Philippines, namely 1) minimal yarding damages to residual stands; 2) increased productive yarding efficiency; 3) ease of operation; and 4) significant reduction of logging cost.

634.0.8
Wood - Anatomy.

85. Identification of some Philippine softwoods through their tracheid characteristics and cross field pittings.

G. Isidro T. Zamuco (FORPRIDECOM, College, Laguna). *Forpride Digest*, April-Sept. 1972, v.1, nos.2-3, p.26-30. illus. 11 refs.

The striking diagnostic features of the tracheids and cross-field pittings of almaciga (*Agathis philippinensis* Warb.), Benguet pine (*Pinus insularis* Endl.), Mindoro pine (*P. merkusii* Jungh, & de Vr.), mountain yew (*Taxus wallichiana* Zucc.) and the different species of Podocarpaceae are briefly discussed. Based on the characteristics studied, the species were found suitable and promising for pulp and papermaking.

634.0.8:531.42
Wood - Specific gravity.

86. The effect of moisture content on the specific gravity of wood below its fiber saturation point.

J. E. Rocafort (FORPRIDECOM, College, Laguna). *Forpride Digest*, April-Sept. 1972, v.1, nos.2-3, p.20-25. tables. 7 refs.

Specific gravity and volumetric shrinkage at different levels of moisture content (M.C.) were determined in 14 species of Philippine woods. Specific gravity at 15, 7 and 0% M.C. was calculated from derived equations and compared with the tests derived mean values and with the computed values, using Maclean's formula. Regression analyses showed linear effect of M.C. on volumetric shrinkage, significant at 1% level of probability. Results indicated that Maclean's formula is applicable to Philippine wood species; however, caution and sound judgment should be exercised in applying it to species with high specific gravity.

634.0.8:66.017
Bark.

87. Characteristics and properties of barks of some Philippine trees.

D. S. Alonzo, A. L. Tongacan, A. D. Valmonte and F. F. Ordinario (FORPRIDECOM, College, Laguna). *Philippine Lum-*

berman, July 1972, v.18, no.7, p.16, 18-23. graphs, tables. 36 refs.

The moisture content and specific gravity of the bark varied widely among species, but compared well with those for wood. No definite pattern of variation was noted. The main bark components were fibers, with the highest percentage found in dungon [*Tarrietia sylvatica* (Vid.) Merr.], and powder fractions as found in para rubber [*Hevea brasiliensis* (HBK) Muell.-Arg.].

634.1/.7:66.014(914)
Fruit - Chemical composition.

88. A survey of the aroma composition of Philippine fruits. Armando B. Aspiras and Edison M. Tocino (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* June-July 1971, v.55, nos.1-2, p.67-82. tables, illus. 13 refs.

Survey of the aromatic components of the different Philippine fruits employing gas-liquid chromatography was done using 2 different columns. Results showed that 13 compounds were detected as peaks on the gas chromatograms from atis, papaya and tamarind using DEGS column; whereas 10 and 12 peaks were detected from tamarind and banana, respectively, using Silicon DC 710 column. Retention time for each peak in each sample and the comparison of the retention time of each peak are discussed.

634.4:581.143
Mangoes - Maturity.
Mangoes - Chemical composition.

89. Physio-chemical changes during growth and maturation of 'carabao' mangoes. D. B. Mendoza, Jr., Er. B. Pantastico and F. B. Javier (College of Agriculture, UPLB, College, Laguna). *Animal Husbandry and Agricultural Journal,* Nov. 1972, v.7, no.11, p.33, 35-36. graphs. 6 refs.

Studies conducted on fruits obtained from an 18-yr-old 'carabao' mango tree revealed the following results: 1) soluble solids increased with increasing age of the fruits; 2) titrable acids increased until 60 days from full bloom and decreased thereafter until the last picking; 3) starch and dry matter increased gradually with maturation of the fruits, the maximum starch production being attained 81 days from full bloom; 4) the earliest picking date of 'carabao' mangoes based on dry matter/starch ratio is between 81 and 88 days from full bloom when most of the dry matter in the fruits is starch; and 5) early picked fruits exhibited their climacteric peak 2 wks after harvest while mature fruits had their peaks after 4-6 days only.

634.616:581.085.23
Coconut - Cultivation.
Plant cells and tissues - Culture.

90. Tissue culture: A tool in coconut propagation and varietal improvement. E. V. de Guzman and A. G. del Rosario (College of Agriculture, UPLB, College, Laguna). [Manila, 1972]. 5p. 1ℓ. 6 refs. Mimeographed. (Paper presented at the National Science and Technology Week Symposium, July 10-16, 1972, Manila)

Experiments on callus culture in coconut showed that various regions of makapuno are responsive to callus-inducing treatments. The most effective treatment is a combination of a 2,4-D supplemented media and agitation treatment at the proper stage of culture. So far, the callus formation attained is below the desired condition of proliferation, thus, further experiments to determine the requirements for a successful culture are necessary.

634.616:631.82
Fertilizers for coconut.

91. Fertilization studies on coconut at the Philippine Coconut Research Institute. Alfonso M. R. Mendoza and Remus L. Prudente (Philippine Coconut Research Institute, Davao City). [Manila, 1972]. 14p. 17ℓ. graphs, tables. 11 refs. Mimeographed. (Paper presented at the National Science and Technology Week Symposium, July 10-16, 1972,Manila)

Experiments on newly transplanted coconut seedlings and 8-yr-old palms of the Laguna variety were conducted to determine the effects of N, P and K on the vegetative and reproductive growths of coconut. Results showed that in regions where the climate and soil are similar to that in the Philippine Coconut Research Institute Station, 400 g $(NH_4)_2SO_4$ in combination with 250 g muriate of potash should be applied to coconut seedlings during the 1st and 2nd yrs, and doubled during the 3rd and 4th yrs to hasten early development and fruiting of newly transplanted coconuts. For bearing coconut palms, a combination of 1.5 kg $(NH_4)_2SO_4$ and 1.6 kg muriate of potash/tree/yr is recommended.

634.616:632.4
Coconut - Diseases and pests.
Coconut helminthosporium leaf spot.

92. Helminthosporium leaf spot of coconut and the effect of irradiation on the fungus. Abelardo M. Era and Martin S. Celino (Araneta University Foundation, Malabon, Rizal). *Araneta Research Journal,* April-June 1972, v.19, no.2, p.137-158. tables, illus. 22 refs.

Microscopic examination of scrapings from infected coconut leaves collected in San Crispin (San Pablo City) in 1969 indicated the presence of conidia and conidiophores of *Helminthosporium.* The morphological, physiological and cultural characteristics of the *Helminthosporium* isolate showed close similarity to *Helminthoporium incurvatum* Bernard. Pathogenicity of the fungus was proven in repeated inoculation experiments. The fungus was only destroyed to irradiation dose of 2598 Kr or higher. The characteristic symptoms of early and advanced stage of the disease and the color of lesions produced by *Helminthosporium* on coconut leaves are discussed.

634.772:631.56
Bananas - Ripening.

93. New methods of ripening banana fruits. Nestor D. Bondad (College of Agriculture, UPLB, College, Laguna). *Animal Husbandry and Agricultural Journal,* Aug. 1972, v.7, no.8, p.30-31, 35. table, illus. 16 refs.

Ethepon, an ethylene-releasing chemical, was observed to hasten and promote uniform ripening of "Saba" and "Murado" when applied before or after harvest. Fruits ripened within 2 or 3 days when dipped in or sprayed with 5000 ppm Ethepon. Dipping and spraying were observed to be effective, however, dipping is expensive as it requires large volume of solution and has its residue problems. Exposure to released ethylene by an alkaline solution of Ethepon was considered best, because it eliminates residue problems.

635.64:632.4
Tomato fusarium wilt.

94. The effect of inoculum level and plant age on the severity of Fusarium wilt of tomato. Leodegario E. Padua and F. C. Quebral (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Oct.-Nov. 1972, v.56, nos.5-6, p.190-197. graph, tables, illus. 8 refs.

Results of the experiments showed that a 10 and 20% inoculum levels, plants sustained the attack of the disease up to the flowering stage, while at 30%, plants wilted at beaming stage. However, at 40-50% levels, wilt symptoms appeared subsequently causing death of the plants within a period of 2 1/2 wks. At these inoculum levels, the plants never reached the flowering stage.

Some instances where plants recovered from the disease may be attributed to the decreased virulence of the pathogen, development of resistance in the plants and the hard tissues as the plants mature.

ANIMAL HUSBANDRY AND PRODUCE

636.083.089
Livestock - Diseases and pests - Therapeutics. Sarcoptic mange.

95. Coconut oil-kerosene mixture a medicinal preparation? Catalino C. Catanaoan. *Better Poultry and Livestock,* Nov. 1972, v.14, no.3, p.16.

A mixture of 3 parts of coconut oil and one part of kerosene was found to be an effective cure of sarcoptic mange in pigs as well as in dogs, cats and other livestock. Measures for the prevention and control of sarcoptic mange are given.

636.2:591.11 636.5:591.11
Blood - Analysis and chemistry - Poultry.
Blood - Analysis and chemistry - Cattle.

96. A comparative study on the blood chemistry of breeding and growing upgrade cattle, swine and poultry in the tropics. Suthichai Uttasart and Marciano D. Yanga (Araneta University Foundation, Malabon, Rizal). *Araneta Research Journal,* Oct.-Dec. 1972, v.11, no.4, p.237-260. tables. 18 refs.

Results of blood analysis showed significant differences in the glucose and uric acid contents of poultry and livestock. Total proteins in all classes of livestock including poultry did not reach the 8.0 mark. The potassium content of cattle and swine blood ranged from 4.3 to 5.7 meq ℓ, and 5.4 to 6.1 meq ℓ, respectively, while chlorides in cattle ranged from 104.5 to 189.1 meq ℓ. The pH reaction in swine showed that the blood was either alkaline or acidic.

636.2.085
Calves - Feeding - Experiments.
Soybean milk.

97. The use of soybean milk replacer in fattening rations for veal calves. A. L. Ordoveza, N. B. Velasco, A. Y. Robles and L. P. Palo (Dairy Training and Research Institute, College, Laguna). *Proceedings of the Ninth Annual Convention of the Philippine Society of Animal Science,* Nov. 9-10, 1972. 5p. tables.

Feeding experiments in 16 one-day-old male crossbred Holstein x Red Sindhi calves in a 10-wk veal fattening period indicated that soybean milk can replace up to 35% of whole cow's milk in fattening rations for veal calves and likewise reduce the cost of producing veal. Slaughter weight of calves at 10 wks was 76.4 kg with an average daily gain of 0.7 kg. Feed efficiency was 1.40 kg feed/kg gain.

636.2.088
Cattle, Beef - Carcasses.

98. Relative proportions and economic values of the different wholesale and retail cuts of beef. V. G. Argañosa, N. M. Dagdagan, F. B. Aglibut and J. C. Madamba (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* June-July 1972, v.56, nos.1-2, p.35-43. tables, illus. 3 refs.

Twenty grade Batangas cattle were used in the study. Wholesale and retail cuts from the left and right sides of the carcass were analyzed using a randomized complete block design. The repeatability of the procedure was also determined. The yields, percentage yield of every wholesale and retail cut and the total values were given. The club, T-bone, porterhouse and round steak were the most expensive cuts. The beef stew and round steak were the 2 heaviest of all retail cuts. The weights of all wholesale cuts from the left side were similar to those from the right side except the flank. Significantly heavier chuck roasts and brisket stew were obtained from the left carcass. The intraclass correlation coefficients between the wholesale and retail cuts from the left and right sides were also given.

636.2.088:591.134
Cattle - Carcasses.
Cattle, Weight and measurements of.

99. Live weights, carcass values and breeding habits of Batangas and Bali cattle. Valente Villegas (College of Agriculture, UPLB, College, Laguna). *Philippine Geographical Journal,* July-Sept. 1972, v.16, no.3, p.69-73. illus.

A comparative description of the physical characteristics, live weights, carcass values and breeding habits of Bali and Batangas cattle at different ages is presented.

636.293:591.11
Blood - Analysis and chemistry - Carabaos.

100. Blood transferrin genotypes of Philippine carabaos. B. A. Parker and V. G. Momongan (College of Agriculture, UPLB, College, Laguna). *Animal Husbandry and Agricultural Journal,* Aug. 1972, v.7, no.8, p.32, 34. tables, diagr. 17 refs.

Blood samples of 732 mature Philippine carabaos were analyzed by Disc electrophoresis to determine the transferrin genotypes. Results showed that 62% of the samples gave Phenotype I pattern. It also indicated that Phenotypes II and III correspond with the Tr AA of cattle. There was a difference in the degree of starch absorption and size of band between the cattle and carabao transferrin bands. Also, a difference in the absorption of stains in the bands was observed between Phenotypes II and III. Hence, transferrin polymorphism exists in the plasma of carabaos.

636.293:591.432(914)
Carabaos - Anatomy. Esophagus - Histology, Pathological - Carabaos.

101. Some observations on the esophagus of the Philippine carabao (Bos bubalis). Edna E. Yap, Ceferino P. Maala and Ernesto Mariano (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* Dec. 1972, v.11, no.2, p.6-13. 6 refs.

Some gross and histological anatomical observations on the esophagus of the Philippine carabao are presented. There are no marked differential findings on the course, topography, morphology and histology of the bubaline esophagus as compared with similar studies done by foreign workers on the esophagus of temperate breeds of cattle. However, the length of the bubaline esophagus is slightly shorter and the diameters are of about the same size as those reported by foreign workers on the temperate breeds of cattle.

636.3:591.13 636.1:591.13
Digestion - Experiments - Horses.
Digestion - Experiments - Sheep.

102. Comparative digestion coefficients of roughages by horses and sheep. Valente Villegas and Aurora C. Feliciano (College of Agriculture, UPLB, College, Laguna). *Proceedings of the Ninth Annual Convention of the Philippine So-*

ciety of Animal Science, Nov. 9-10, 1972. 9p. tables.

Studies showed that sheep gave higher digestion coefficients than the horses. Being a ruminant, the sheep masticates its feed partially before the first ingestion, followed by thorough grinding before the second ingestion. The sheep's feed also receives complimentary digestion in the rumen mechanically and biologically. In its omasum the coarse feed is further reduced to finer particles between its "leaves". The mean and average digestion coefficients of roughages by sheep and horses supplemented with concentrates are given.

636.3.088
Mutton. Lamb (meat) - Cooking tests.

103. Wholesale cut yield of mutton and some of its culinary uses. P. L. Madlansacay, T. R. Aducayen, L. S. Rivera, F. C. Pastor, Z. F. Albano, L. A. Mangawang and C. O. Miranda. *BAI Recorder*, July-Sept. 1972, v.32, no.1, p.25-27. table.

Based on the dressed weight of Australian mutton, it was found that the leg contains the highest proportion of lean to bone per se, weighing more than ¼ of the total weight of the carcass, followed in descending order by the shoulder, breast and shank, loin and rack.

Results of tests on 6 recipes of mutton meat indicated its acceptability in the Filipino diet.

636.4.082.4
Swine - Reproduction. Swine breeding.

104. The influence of age at first farrowing and litter sequence on the reproductive performance of sows. V. G. Argañosa and B. R. Rodillo (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist*, Aug.-Sept. 1972, v.56, nos.3-4, p.86-97. tables. 20 refs.

The records of 1097 litters farrowed by 306 crossbred sows in the Dimayuga Farms, Nagcarlan (Laguna) were used in the study. Results showed that the age at first farrowing did not have any influence on weaning percentage and number of stillborn pigs but had significant effects on the litter size at birth and at weaning. Sows which first farrowed at less than 350 days old farrowed and weaned significantly smaller litters than older sows. The 1st litter was significantly smaller than the 2nd litter at birth and at weaning. Generally, the correlations of the 1st litter size at birth with litter sizes at subsequent farrowings up to the 10th litter were insignificant except for the correlations between the 1st and 2nd and the 1st and 4th litter.

636.4.082.4:616-007
Swine - Abnormalities and deformities.

105. A study on the occurrence of sex intergrades or morphadites, lethal characters and abnormalities in the different breeds of swine in Central Luzon. Sunthorn Nugitrungsan and Marciano D. Yanga (Araneta University Foundation, Malabon, Rizal). *Araneta Research Journal*, April-June 1972, v.19, no.2, p.88-102. tables, illus. 18 refs.

Observations made among the breeds of swine in the different commercial and semi-commercial piggeries showed the following results: 1) the Landrace sucklings had the most number of abnormalities especially with morphadites or pseudohermaphrodites; 2) the most common inherited abnormalities found in almost all breeds and crosses (except in the Hampshire, Berkshire and Large White x Duroc cross) were abdominal and scrotal hernias; 3) 3 kinds of pseudohermaphrodites were observed; 4) no pronounced heat was observed among the pseudohermaphrodites at puberty or later ages; and 5) the occurrence of incomplete twinning was observed in 2 forms among the Duroc and Large White x Landrace cross.

636.4.083.1
Swine houses - Floors.

106. Performance of hogs raised on concrete floor and on partially slatted wooden floor. R. G. Zamora, R. V. Saure, D. B. Roxas, A. L. Gerpacio and L. S. Castillo (College of Agriculture, UPLB, College, Laguna). *Proceedings of the Ninth Annual Convention of the Philippine Society of Animal Science*, Nov. 9-10, 1972. 8p. tables. 3 refs.

Results of the experiments conducted on 88 animals in 4 stages of growth (starter, grower, grower-finisher and finisher) showed that their over-all performance was the same on both floorings. Pigs raised on the slatted floor had an average daily gain of 0.58 kg and better feed conversion of 2.94 compared to 0.59 kg and 3.07 for the concrete floor. However, a slightly thicker backfat was observed in pigs raised on concrete floor.

636.4.085
Swine - Feeding - Experiments.

107. Copper sulfate supplementation in swine ration. P. L. Bayan, Jr., L. L. Puyod, II, P. F. Alcantara and O. M. Gatmaitan. *Animal Husbandry and Agricultural Journal*, Oct. 1972, v.7, no.10, p.13-14, 16. tables. 14 refs.

Twenty weanling pigs (Duroc and Large White Cross), with an average initial weight of 10.15 kg, were used to determine the effect of $CuSO_4$ supplementation in grower ration on growth performance and blood characteristics of weanling pigs. The pigs were alloted at random with respect to weight, age, sex and litter into 5 experimental treatments in a completely randomized design. $CuSO_4$ was added to the basal ration at the rate of 50, 100, 150 and 200 ppm.

Results indicated that addition of $CuSO_4$ to the grower ration improved slightly growth rate and feed efficiency of the experimental animals with maximum response obtained at 150 ppm. Blood values were higher in the supplemented group than in the control. However, all the erythrocytic indices of the pigs from the various treatments were not significantly different from one another.

636.4.088
Swine - Carcasses.

108. Effects of walking exercise on some characteristics of pork carcass. E. E. Andaya, V. G. Argañosa and F. A. Salayog (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist*, Aug.-Sept. 1972, v.51, nos.3-4, p.98-103. table. 8 refs.

Results of the study showed that the animals given the walking exercise gave high carcass yield, slightly high dressing percentage, less carcass backfat and short carcass. The voluntary exercised animals have slightly large loin eye area and high percentage of lean cuts. In the left ham separation, the confined animals had slightly high per cent lean and low per cent fat and skin and bone in ham. No significant differences were found among the characteristics of pork carcass studied which could be attributed to exercise.

636.5.082.4
Poultry - Molting.
Poultry - Egg production.

109. A study on force-molting chicken with the use of the human contraceptive pill. Norma A. Eligino and Rufino B. Borjal (Araneta University Foundation, Malabon, Rizal). *Araneta Research Journal*, July-Sept. 1972, v.19, no.3, p.162-176. tables. 10 refs.

The efficacy of the human contraceptive pill (HCP) was tried on twenty two 18-mo.-old Kathline layers at the Araneta University Foundation. Results showed that a drug concentration in the feed of about 0.7 mg progestogen plus 0.04 mg estrogen/bird from the ordinary HCP effectively molted the birds without impairing egg production permanently. Egg production has the tendency to stop earlier after treatment as the drug concentration increases.

636.5.089:615.778
Poultry - Diseases and pests - Therapeutics.
Coccidiostats.

110. Evaluation of Coyden 25, Amprol plus and Zoamix in broilers artificially infected with mixed Eimeria cocysts. Mauro F. Manuel and Maximo S. Puga (College of Veterinary Medicine, University of the Philippines, Quezon City). *Proceedings of the Ninth Annual Convention of the Philippine Society of Animal Science*, Nov. 9-10, 1972. 10p. tables.

Of the 3 coccidiostats evaluated, Coyden 25 at 0.0125% was found the most effective against *Eimeria tenella* in broiler chicks raised on deep litter followed by Amprol plus and Zoamix. Chicks that received Coyden supplemented ration showed no lesions, no cocyst production and no mortality attributable to *E. tenella* infection against a mortality rate of 1.6 and 5% in Amprol plus and Infected Control group, respectively.

636.5.089:615.778
Poultry - Diseases and pests - Therapeutics.
Coccidiostats.

111. A study on the effects of cycostat and Amprol plus, with or without Payzone on battery-raised broilers. Mauro F. Manuel and Rodrigo J. Buduan (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine*, Dec. 1972, v.11, no.2, p.73-91. tables. 58 refs.

Using 3600 battery-raised broilers, birds medicated with Payzone gained more weight and had better feed efficiency than the non-medicated one, whether in combination with Amprol plus or Cycostat. None of the chicks died of coccidiosis. This finding indicates that Payzone influences favorably the weight gain and feed efficiency of broilers regardless of sex and that Amprol plus or Cycostat has no effect on the performance of broilers.

636.597.083
Ducks - Confinement methods.

112. **The effect of water pond and floor space on the performance of laying ducks.** E. C. Coligado, A. S. Alejar, F. V. Navasero and O. R. Lawas. (College of Agriculture, UPLB, College, Laguna). *Proceedings of the Ninth Annual Convention of the Philippine Society of Animal Science,* Nov. 9-10, 1972. 14p. tables.

Results of the experiments conducted on 354 ducks and 54 drakes showed that the availability of water pond does not have any significant effect on the performance of laying ducks except on their significantly greater feed consumption. A floor space allowance of 2.5 sq.ft/duck significantly depressed egg production, and slightly affected the egg size, feed conversion and livability as compared to ducks given a wider floor area.

636.7:591.473
Dogs - Anatomy. Muscle.

113. **The brachioradialis muscle of the native dog.** Jose A. Solis and Celestina M. Cruz (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* Dec. 1972, v.11, no.2, p.1-5. illus. 7 refs.

Of the 32 animals studied, the muscle was found only in 8 male and 9 female dogs. The brachioradialis muscle is in the form of a long, narrow and thin strip of muscle located on the dorsal surface of the forearm, crossing obliquely the extensor carpi radialis muscle from the lateral to the medial side in a downward direction. It often originates from the lateral surface supracondyloid crest and sometimes from the external epicondyle of the humerus. The insertion is on the medial aspect of the radius, a variable distance above the distal end of that bone. The blood and nerve supply comes from the proximal collateral radial artery and the superficial branch of the radial nerve, respectively. Although the action of brachioradialis muscle is hardly appreciable, it may assist in the supination of the forearm and flexion of the elbow joint if better developed.

637.127.6
Milk - Bacteriology.

114. **Some microbiological aspects of toned milk.** L. C. Eala, V. C. Lerpido and T. A. Dulay (Dairy Training and Research Institute, College, Laguna). *Kalikasan,* 1972, v.1, no.1, p.11-16. tables. 10 refs.

Analysis of toned carabao-cow milk revealed that raw milk had a bacterial count of 4×10^3 to 4.2×10^8 colonies/ml and pasteurized toned milk, 2×10^2 to 4.6×10^5 colonies/ml. The microflora isolated from both raw and pasteurized milk included *Micrococcus, Streptococcus, Microbacterium, Lactobacillus* and coliform species. *Micrococcus* and *Bacillus* were found predominant in pasteurized milk.

637.127.6
Milk fat globules.

115. **Carabao milk: XI. The size, shape and number of its fat globules.** Clara L. Davide and Araceli G. Abad (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* June-July 1972, v.56, nos.1-2, p.16-24. tables, illus. 17 refs.

One hundred carabao milk samples were examined. Results showed that the fat globules appeared as spheres of unequal diameters with an average diameter of 3.47 microns. Size distribution also showed that the highest globules concentration fell into the 1.25-2.0 micron class with an average frequency of 19.74%. Globules with a diameter greater than 10.0 microns constituted 0.35%. The fat content ranged from 6.2 to 13.8% with an average of 10%. One cu.mm of milk contained an average of 2,741,800 fat globules. Correlation analysis showed that the fat content has no linear relationship with the diameter of the fat globule. However, the number of fat globule is correlated with the fat content. The correlation is considered to be highly significant ($r=0.543$).

637.5:636.4
Muscle - Analysis and chemistry - Swine.

116. **The masseter muscle as an index of occurrence of pale, soft, exudative (PSE) muscular condition in pork.** Patricia T. Arroyo, Primo V. Arambulo, III, Oscar T. Diongco and Angela R. Constantino. *Proceedings of the Ninth Annual Convention of the Philippine Society of Animal Science,* Nov. 9-10, 1972. 8p. tables. 10 refs.

Masseter muscle from 221 Landrace, 205 Berkshire and 101 of the native breed was used in the study. Color scores and pH of all the breeds decreased significantly over the 24-hr period post mortem at 36°F indicating that considerable anaerobic glycolysis has taken place in spite of the masseter's predominantly red fiber content. Color scores at 24 hrs post mortem (CS_{24}) of Landrace increased significantly with increase of carcass weight but not in Berkshire and native breed. CS_{24} of the native breed decreased significantly with increase in carcass temperature 45 min post mortem, whereas, in the Berkshire and Landrace the negative linear correlation was insignificant. CS_{24} of all the breeds increased significantly with increase in pH both at 45 min and 24-hr post mortem. There was no significant difference in CS-24 among the 3 breeds. Data obtained suggest the use of masseter muscle as an index of PSE condition in pork instead of the more expensive *Longissimus dorsi* muscle.

FISHERIES

639.222.21:639.3
Fishes - Food and feeding.

117. Solution to milkfish feed problem in Cavite found. *Animal Husbandry and Agricultual Journal,* Aug. 1972, v.7, no.8, p.28.

"Lab-lab", a brownish, greenish or yellowish crust which develops on the floor of fish pond nurseries under favorable condition, was found in a study conducted by the Fisheries Commission to be a good feed for milkfish fry and fingerlings under cultivation. The production of "lab-lab" depends mostly on the nursery pond which should be completely cleaned of its enemies and competitors of the fry. Preparations of nursery pond to ensure the successful growth of "lab-lab" are described.

FOOD. COOKERY

641.1:633.18 633.18:641.1
Rice - Food value.

118. Note: Amylose and protein contents of milled rice as eating quality factors. Bienvenido O. Juliano (International Rice Research Institute, Los Baños, Laguna), Luz U. Oñate and Angelita M. del Mundo (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* June-July 1972, v.56, nos.1-2, p.44-47. tables. 6 refs.

Milled rice of lines from the same crosses differing in either amylose content or protein content were evaluated by a Filipino taste panel. Amylose content was verified as the most important factor affecting the tenderness, cohesiveness and gloss scores of cooked rice regardless of the water-rice ratio used during cooking. The color score of cooked rice was less affected by differences in amylose and protein contents than scores for cohesiveness and tenderness.

641.56
Food relief.

119. Nutrition for short-term emergency. Norma M. Villegas and Carmen Ll. Intengan (National Institute of Science & Technology, Manila). *Philippine Journal of Nutrition,* July-Sept. 1972, v.25, no.3, p.176-182. tables. 8 refs.

Seven samples of food ration for different age groups were formulated to provide the recommended nutrient allowance for minimum subsistence during emergencies. The formulations were prepared considering the nutrients, economic and practical aspects of stockpiling, such as packaging size, shelf life and availability.

CHEMICAL AND ALLIED INDUSTRIES

66.091:547.313.2:582.28
Fungi - Gas production. Ethylene.

120. Periodicity of ethylene production in fungi. Lina L. Ilag (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* June-July 1972, v.56, nos.1-2, p.9-15. graphs, table. 3 refs.

Periodicity in the production of ethylene by *Schizophyllum commune* Fr., *Cephalosporium gramineum* Nisikado and Ikata, *Mucor mucedo* L. and *Penicillium expansum* Link grown in corn steep medium was observed. This phenomenon was more pronounced in still than in shake cultures. The amount of gas evolved varied from little or no ethylene to several hundred liters within 24 hrs in some instances. The major periods of ethylene production generally occurred before autolysis. Still cultures produced more ethylene than shake cultures.

Maximum ethylene formation by *P. expansum* and *Aspergillus clavatus* Desmazieres in 10 different agar media varied with the fungus, the medium and the age of the culture.

661.183.2:674.03
Carbon, Activated.

121. Activation of kaatoan bangkal (Anthocephalus chinensis (Lamk.) Rich, ex Walp.) wood charcoal. I. By the zinc chloride method. Nieva B. Laxamana. *Philippine Lumberman,* Nov. 1972, v.18, no.11, p.14, 16, 18. tables. 10 refs.

Kaatoan bangkal charcoal reacted strongly with $ZnCl_2$, indicating strong adsorptive power of the activated carbon product. The iodine adsorption test conducted on the product showed better decolorizing characteristics compared to that of commercial activated carbons, the iodine adsorbency exceeding those of lumbang [*Aleurites moluccana* (L.) Willd.], ipil-ipil [*Leucaena leucocephala* (Lam.) de Wit] and also other commercial active carbons tested.

661.734.2:634.0.8:66.061-954
Tannins.

122. Multistage countercurrent extraction of tannins from tannin-containing materials. E. V. Gonzales. College, Laguna, Forest Products Research & Industries Development Commission, Aug. 1972. 3p. diagr. 8 refs. (Technical note no. 120)

The Forest Products Research & Industries Development Commission developed a pilot tannin-extraction plant using the 6-stage countercurrent system. Studies showed that particular species of bark require different conditions suitable for extraction: white lauan [*Pentacme contorta* (Vid.) Merr. & Rolfe], 1:18 bark-to-water ratio; red lauan [*Shorea negrosensis* Foxw.], 1:12 bark-to-water ratio; and coconut dust, 1:14 bark-to-water ratio at 60°C, 1-hr leaching. The extracted tanning liquors are concentrated to about 10% total solids. Extracts in powdered form are prepared from the concentrated tannin liquor.

663.81
Citrus fruit juices.

123. The effect of pretreatment and extraction method on yield and quality of fresh kalamansi (Citrus microcarpa Bunge) juice. Miflora M. Gatchalian and Leonor M. Santos. *Philippine Journal of Science,* Sept.-Dec. 1970(1972), v.99, nos.3-4, p.241-252. tables, diagr. 10 refs.

Juice was extracted from blanched and unblanched kalamansi (*Citrus microcarpa* Bunge) by different methods. Hand-squeezing of sliced fruits was generally found to give the highest yield and the most acceptable juice than that extracted by other methods. In general, blanching as a pretreatment to extraction tended to increase yield. Among the physico-chemical characteristics of the juice, soluble solids content was most affected by the method of extraction.

664.11.002.67:691.14 691.14:664.11.002.67
Bagasse. Fiber board.

124. Bagasse structural board - our hope? Manuel F. Gloria. *Sugarland,* June-July 1972, v.9, nos.6-7, p.14, 16, 22, 27-28. tables, illus.

The wet and dry methods of processing bagasse into structural boards are described. In the Philippines, bagasse, which forms 45-50% of the dry content of sugarcane, is not being utilized extensively. It is hoped that the possibilities of utilizing sugarcane by-products particularly bagasse be explored.

664.38
Coconut flour - Protein value.

125. Studies on the preparation of new forms of protein isolates suitable for culinary use. Antonia L. Gonzales, Teresita R. Claudio and Guillermina C. Mañalac (National Institute of Science & Technology, Manila). *Philippine Journal of Science,* Sept.-Dec. 1970(1972), v.99, nos.3-4, p.117-129. tables. 17 refs.

The drum drier method of isolating protein from the water extract of coconut flour gave the highest yield of product and the most palatable protein isolate, with the protein flakes keeping for 6 mo. However, the isoelectric precipitation method gave the purest isolate. The dried protein isolates produced by the heat coagulation and isoelectric precipitation kept well for at least one yr. The wet protein isolate treated with 1% sodium benzoate kept well for only 10 days. Biological evaluation of the protein isolates and recipes containing these isolates gave encouraging results particularly for the protein flakes and the wet protein isolates.

664.41.002 620.92
Salt - Manufacture. Steam, Natural.

126. Geothermal energy for salt-making. Alfredo C. Protacio. [Manila, 1972]. 21p. tables. 6 refs. Mimeographed. (Paper presented at the National Science and Technology Week Symposium, July 10-16, 1972, Manila)

Preliminary results of the test runs conducted on the pilot salt-making plant using geothermal steam in Tiwi (Albay) showed that the process is technically feasible and financially acceptable. The plant using triple effect evaporator is aimed to produce 3000 metric tons of salt annually. Presently, 94-98% pure NaCl is obtained. It is therefore suggested that a more effective method of separation of other dissolved salts like Ca and Mg be used.

The data and operational experience in the project will be the basis for the development of a plant with an annual production capacity of 60,000 metric ton.

664.69
Cereal products.

127. Present and potential utilization of cereals in the Philippines. Luz U. Oñate (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Aug.-Sept. 1972, v.56, nos.3-4, p.123-138. tables, illus. 25 refs.

The available supply, consumption and nutrient composition of cereals and other carbohydrate foods are tabulated. The food, feed and industrial uses of cereals are given.

664.94:636.5 641.1:636.5
Poultry, Dressed - Storage.
Poultry, Dressed - Food value.

128. Generalized processing of frozen fried chicken for reheating with microwave energy. Eduardo C. Sison (College of Agriculture, UPLB, College, Laguna). *Proceedings of the Ninth Annual Convention of the Philippine Society of Animal Science,* Nov. 9-10, 1972. 14p. tables. 5 refs.

Experiments showed that breaded fried chicken can be stored only up to 3 mo. at constant low temperature and be reheated in a microwave oven without substantial loss in eating quality. Insignificant differences were observed in the eating quality between newly cooked unfrozen and frozen-thawed chickens, and between products frozen by air-blast and liquid nitrogen, and between those frozen by air-blast and liquid freon. Packaging has a minor effect on the deterioration of eating quality under constant low temp. storage.

668.44:676.2
Resinous products - Paper uses.

129. Philippine rosin sizes for papermaking. II. Mindoro pine and almaciga. Erlinda Cabotage-Salud (FORPRIDECOM, College, Laguna). *Forpride Digest,* April-Sept. 1972, v.1, nos.2-3, p.31-37. graph, tables. 8 refs.

An experimental paper size prepared from steam-distilled Mindoro pine rosin and its sizing qualities were evaluated and compared with an imported commercial size. Handsheets treated with Mindoro pine size gave lower water absorptiveness in g/sq.m compared to handsheets treated with commercial size. This indicates that Mindoro pine size decreases water penetration of paper even better than commercial rosin size. Formulations of Mindoro pine size with almaciga size in ratios of 40:60, 50:50, 60:40, 75:25, likewise, showed satisfactory sizing properties.

668.443:633.94
Elemi. Resinous products.

130. Manila elemi. A. L. Tungacan. College, Laguna, Forest Products Research & Industries Development Commission, Oct. 1972. 2p. table. 6 refs. (Technical note no. 122)

"Manila elemi" (White pitch) is considered the most important and best known of all elemis. The principal source is piling-liitan [*Canorium luzonicum* (Bl.) A. Gray] of the Burseraceae family growing abundantly in the forests of Luzon, Mindoro, Alabat Island, Masbate, Ticao Island and Bohol. Pili (*Canarium ovatum* Engl.) also yields "Manila elemi" but it is more valued for its tasty, nutritious nuts than for its resin. Manila elemi is graded according to its class. Its uses, characteristics and the scientific tapping techniques are briefly discussed.

668.5(914)
Essential oils - Analysis.

131. Physical properties of some Philippine essential oils. Luz O. Belardo, Victoria Cardeño and Patria Perez. *Philippine Educational Forum,* Dec. 1972, v.21, no.3, p.76-86. graphs, tables.

Fruit pulps, peelings, leaves and woods of 18 Philippine plants were tested for its essential oils by hydro-steam distillation and gas chromatography. The yield of oil from some samples produced only trace amounts. The essential oils of santol [*Sandoricum koetjape* (Burm. f.) Merr.], guava (*Psidium guajava* L.) and mabolo (*Diospyros discolor* Wild.) possess odors of some elements in cosmetics and fantasy perfumes. *D. discolor* oil had a quality of acquiring an exotic aroma when its odor was slowly diluted with air. The oil obtained from the peelings of "atis" (*Anona squamosa* L.) was greater in quantity and had a stronger and likeable aroma than the pulp. The rich odor of the fruit and highly odorous aqueous distillate were obtained from jackfruit (*Artocarpus heterophyllus* Lam.). Further studies are being undertaken to ascertain the practical uses of these oils, particularly for acceptability in food preparations and compatibility in drug compounding.

WOODWORK AND TIMBER INDUSTRY

674.02:658.513
Woodworking operations.
Linear programming.

132. A study on the application of linear programming for sawmill improvement. Felizardo D. Virtucio (FORPRIDECOM, College, Laguna). *Philippine Lumberman,* Oct. 1972, v.18, no.10, p.10-12, 14-16. tables. 15 refs.

The complex problem of improving a conventional sawmilling operation was analyzed with the application of linear programming techniques. 3 sawing schemes were translated into mathematical models to afford quantitative evaluation of their effects on sawmill revenue. Results showed that with the application of the 3rd sawing scheme the profitability of the different log inputs could be improved and sawmill revenue maximized. Logs were cut into cants and flitches instead of final thickness boards at the headrig, a procedure which increased the productivity of the headsaw besides reducing considerably the idle time at the edger, trimmer and at the sorting table. Conventional sawing and sawmill revenue were improved by 45%.

674.03:581.8(914)
Wood - Anatomy.

133. Figure in Philippine woods. R. Z. de la Cruz (FORPRIDECOM, College, Laguna). *Forpride Digest,* April-Sept. 1972, v.1, nos.2-3, p.7-8. 4 refs.

Studies of some Philippine woods revealed the presence of figures, such as: 1) figure due to some physical properties and the natural arrangements of the wood elements; 2) figure due to grain variation and irregularities, except the fiddle back figure; and 3) figure due to irregularities in the tree trunk, except that due to burls and bird's eye which has not been found so far in any of the Philippine species studied.

674.03:620.173/.174
Wood - Properties and uses.

134. The influence of slope of grain on the bending and compressive strength of Benguet pine (Pinus insularis Endl.) and Palosapis (Anisoptera thurifera Blanco). R. J. Miciano, F. M. Lauricio and J. O. Siopongco (FORPRIDECOM, College, Laguna). *Philippine Lumberman,* Dec. 1972, v.18, no.12, p.18-21, 23. graphs, tables. 12 refs.

Results of the test using the standard size specimens of green timbers of palosapis and Benguet pine showed a linear effect of slope of grain on the moduli of rupture and elasticity in bending and compression parallel to grain. Bending modulus of elasticity appeared to be affected more by slope of grain than modulus of rupture and maximum compressive strength, the least.

674.03:620.174
Wood - Properties and uses.

135. Bending properties of Philippine woods. IV. Malapanau, nato and tangile. Exequiel U. Mendoza. *Forpride Digest,* Oct.-Dec. 1972, v.1, no.4, p.19-21. table.

Bending tests conducted at FORPRIDECOM, College (Laguna) on plain-sawn one-inch thick and quarter-sawn 1/8-inch thick wood specimens of malapanau (*Dipterocarpus kerrii* King), nato [*Palaquium luzoniense* (F. Vill) Vid] and tangile [*Shorea polysperma* (Blanco) Merr.] showed fair solid-bending properties. In laminated bending, malapanau and nato were rated fair and tangile, good.

674.243
Plywood.

136. Types and kinds of plywood. A. G. Filoteo. College, Laguna, Forest Products Research & Industries Development Commission Dec. 1972. 2p. 5 refs. (Technical note no. 124)

The different classifications of plywood according to physical construction, physical appearance and type of bond are briefly discussed. The types of plywood, such as technical or fully waterproof, exterior or waterproof, interior or water-resistant, moisture-resistant and dry-resistant bonds are also given. Waterproof plywood are designed to withstand full weather and water exposures and are useful in installations where extreme humidity or repeated wetting with temperature may be encountered. On the other hand, water-resistant plywood are useful where there are temporary or occasional exposures to wetting. Moisture- and dry-resistant bonds are good only for interior dry applications and cannot withstand high humidity conditions.

674.8:636.087
Feeding and feeding stuffs - Wood.

137. Animal feed from wood waste. F. G. Lapitan (FORPRIDECOM, College, Laguna). College, Laguna, Forest Products Research & Industries Development Commission, Sept. 1972. 2p. 7 refs. (Technical note no. 121)

Studies have shown that wood residues contain 70-80% carbohydrates which can be made available as energy feed by delignification, saccharification, ionizing radiation and steaming. Steaming was found most economically inexpensive as tried with some American hardwoods; digestibility increased to a level comparable to that of medium hay.

PULP AND PAPER INDUSTRY

676.1.02
Pulp manufacture - Bleaching.

138. **Some bleaching patterns applicable to abaca soda pulps.** Eduardo P. Villanueva, Olivia B. Tadena and Cresencia H. Ballon (FORPRIDECOM, College, Laguna). *Forpride Digest,* Oct.-Dec. 1972, v.1, no.4, p.12-18. tables. 4 refs.

Five different patterns were applied in the bleaching of abaca-soda pulps. The C-E-H-E-H [chlorination (C), 2 alkaline extraction stages (E) and 2 hypochlorite-oxidation stages (H)] sequence developed the highest brightness and the least physical degradation on the pulp, while the single-stage H process had extensive chemical and physical degradation effects. The acetic-acid pre-treatment in the AC-H process developed pulp resistance against the oxidizing action of the hypochlorite. The C-E-P (acetic acid-hypochlorite-oxidation) process has the potentials of producing a more desirable bleaching reaction with abaca pulp than the C-E-H sequence from the standpoint of the physical and chemical qualities of bleached pulp.

676.1.02.03
Pulp manufacture - Refining. Manila hemp.

139. **High alpha pulp from abaca (Musa textilis Nee) fibers.** B. O. Bawagan, E. M. Medrano and E. P. Villanueva (FORPRIDECOM, College, Laguna). *Philippine Lumberman,* Aug. 1972, v.18, no.8, p.8, 10-11. tables. 20 refs.

An unbleached grade of high-alpha pulp could be developed from abaca (*Musa textilis* Nee) fiber. The unbleached prehydrolyzed-sulfate pulp analyzed yielded 0.52% ash, 0.75% lignin, 2.25% pentosans and 95.05% alpha cellulose. The unbleached-grade of abaca pulp, without undergoing further purification by multi-stage bleaching, could find application in the dissolving-pulp industry.

Purified by a 3-stage C-E-H bleaching sequence, with a cold extraction stage, prehydrolyzed-sulfate pulp of abaca fiber yielded 96.9% bleached pulp, analyzed as 0.06% ash, 0% lignin, 1.46% pentosans and 93.04% alpha cellulose. Bleaching developed a viscosity of 6.44% cps and a brightness of 86%. The quality of the purified abaca pulp surpassed the specifications for commercial dissolving pulp.

676.1.03(914)
Wood pulp.

140. **Philippine pulp materials for newsprint.** Jaime O. Escolano, Eduardo P. Villanueva and Pablo M. Nicolas (FORPRIDECOM, College, Laguna). *Philippine Lumberman,* Nov. 1972, v.18, no.11, p.25-30. tables. 8 refs.

Experimental newsprint of unconventional composition were made from composite mixtures of mechanical-semichemical, mechanical-chemical and semi-chemical-chemical pulps from Philippine species of hardwoods, softwoods, bamboos and agricultural fibrous materials. The local raw materials were found suitable for the production of commercial-quality newsprints. The selective utilization of the cold-soda pulps of kaatoan bangkal (*Anthocephalus chinensis* Rich. ex Walp.), balsa [*Ochroma pyramidale* (Cav.) Urb.], gubas (*Endospermum peltatum* Merr.), African tulip (*Spathodea campanulata* Beauv.) and moluccan sau [*Albizzia falcata* (L.), Back.] for newsprint manufacture enabled the utilization of the unbleached pulp to the newsprint stock. A mixture of 80% cold-soda pulp from any of the aforementioned species and 20% of bleached banana or bamboo sulfate pulp would be a good newsprint-stock combination.

676.16
Wood pulp.

141. **Bleached kraft pulps of some Philippine reforestation-timber species.** Eduardo P. Villanueva and Olivia B. Tadena (FORPRIDECOM, College, Laguna). *Philippine Lumberman,* Oct. 1972, v.18, no.10, p.30-33. tables. 17 refs.

Kraft-pulping studies on a 4 fast-growing hardwood species, as 15.6% active alkali and 25.5% sulfidity, showed an improved record of chemical-pulp yield for Philippine hardwoods. Moluccan sau [*Albizzia falcata* (L.) Back] and yemane (*Gmelina arborea* Roxb.) gave exceptionally high pulp yields of 53.8 and 55.7%, respectively. Their requirements of total available chlorine for bleaching were identical at 5.5%. Pulp yields of 45.3 and 47.3% from African tulip (*Spathodea campanulata* Beauv.) and kaatoan bangkal [*Anthocephalus chinensis* (Lamk.) Rich ex. Walp], respectively, were within the normal level for Philippine hardwoods.

The 3-stage C-E-H bleaching process developed variable degrees of photo-volt brightness, from 75.5 (African tulip) to 77.5% (moluccan sau). Bleached-pulp yield ranged from 87.3 (African tulip) to 96% (yemane). The moderate strength properties of the bleached pulps were typical of hardwoods.

676.18
Banana fiber pulp.

142. **Chemical pulps from giant cavendish banana fibers: their properties and bleach requirements.** E. P. Villanueva, R. V. Visperas, C. P. Estudillo, O. B. Tadena and W. S. Gabriel (FORPRIDECOM, College, Laguna). *Forpride Digest*, April-Sept. 1972, v.1, nos.2-3, p.13-19. tables, diagr. 9 refs.

Giant cavendish banana (*Musa cavendish* Lamb.) fibers were found suitable for high quality specialty pulp manufacture. 64.6% soda, 63.7% kraft and 72.3% alkaline-sulfate pulps were obtained by 3 chemical processes having strength characteristics superior to those of the commercial abaca pulps. Bleaching by the conventional 3-stage C-E-H process effected 86% and 85% brightness for banana kraft and soda pulps, respectively, with minimal pulp degradation; the alkaline-sulfite pulp had 81% brightness and produced a pulp yield of 99%. The strength properties of the bleached pulp were higher than those of flax pulp.

LIST OF PUBLICATIONS ABSTRACTED

NOTE: Listed hereunder are the publications from which pertinent articles are abstracted in this issue.

A. PERIODICALS

Acta Manilana

Acta Medica Philippina

Animal Husbandry and Agricultural Journal

Araneta Research Journal

BAI Recorder

Better Poultry and Livestock

Bureau of Forestry
  Occasional Paper

CLSU Scientific Journal

Filipino Family Physician

Forest Products Research and Industries Development Commission
  Technical Note

Forpride Digest

Journal of the Philippine Medical Association

Kalikasan

Leyte-Samar Studies

Mineral Engineering Magazine

Philippine Agriculturist

Philippine Architecture, Engineering & Construction Record

Philippine Atomic Bulletin

Philippine Educational Forum

Philippine Geographical Journal

Philippine Journal of Nutrition

Philippine Journal of Pediatrics

Philippine Journal of Public Health

Philippine Journal of Science

Philippine Journal of Veterinary Medicine

Philippine Lumberman

Philippine Mining Record

Philippine Scientist

Proceedings of the Ninth Annual Convention of the Philippine Society of Animal Science

Proceedings of the Philippine Society of Endocrinology and Metabolism

Saint Louis University Research Journal

Silliman Journal

Sugarcane Farmers Bulletin

Sugarland

B. OTHER DOCUMENTS

Papers:

  National Science and Technology Week Symposium

ISSN 0031-7438

Philippine Abstracts

A quarterly classified summary of the latest Philippine publications in the field of science and its applications (UDC 5 and 6)

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PHILIPPINE ABSTRACTS

A quarterly classified summary of the latest Philippine publications in the field of science and its applications (UDC 5 and 6)

Vol. 15, Nos. 3-4 July-December 1974

MATHEMATICS

517.9
Integral equations.

143. Calculate the unary phase equilibrium diagram with the Clapeyron equation. Meliton U. Ordillas, Jr. *Philippine Metals*, April-June 1973, v.3, no.2, p.18-23. graphs, table. 3 refs.

Free energy considerations indicate that the Clapeyron equation is the differential form of the equation of the phase equilibrium curve. Assuming that a) the heats and volumes of transformation are constant, b) the gas phase behaves like an ideal gas, and c) the molar volumes of the condensed phases are negligible compared to the gas phase, the Clapeyron equation was integrated to yield the explicit equations of the phase equilibrium curves. The integrated equations showed that: 1) for equilibrium between the condensed phases, the equilibrium curve is linear and may have either a positive or a negative slope; 2) for equilibrium between a condensed phase and a gas phase, the equilibrium curve is exponential with a positive slope; and 3) at the triple point, the slope of the sublimation curve should be greater than that of the vaporization curve.

CHEMISTRY

54.02:546.17
Nitrogen - Isotopes. Nitrogen fixation.

144. Use of stable isotope N^{15} in biological nitrogen fixation. V. Iswaran (Dr. M. L. Roxas Memorial Experiment Station, Lipa City). *Animal Husbandry and Agricultural Journal*, Sept. 1973, v.8, no.9, p.23-24. tables. 5 refs.

Studies revealed that wide variation in results of quantitative estimates made for nitrogen gains for biological N_2 fixation is attributable to difference in the soils, experimental conditions, methods and techniques. With the use of stable isotope N^{15}, however, more accurate estimates were obtained. Considering the insufficiency of supply of fertilizer, especially in developing countries, an accurate means of measuring biologically fixed nitrogen will help to maximize the use of the moderate amount of fertilizer nitrogen normally available. 3 Philippine rice soils studied using N^{15} tracer techniques fixed 10-55 kg N/acre/yr. Presented are the advantages and disadvantages of the use of radioactive and stable isotopes for tracer work, preparation of labelled or tagged nitrogen, procedure for enrichment and cost of N^{15} preparation.

545.844:518.2
Chromatographic analysis - Paper chromatography.

145. Computation of Rf values in paper chromatography. II. Use of tables of ratios. Salvador M. Fanega. *Philippine Lumberman*, June 1973, v.19, no.6, p.14, 16. tables.

The procedure in the use of the 2 sets of mathematical Tables of Ratios as a handy aid in R_f value computation is presented. The tables are so designed that R_f values for solvent-front distances that are multiples of 0.5 cm can be read directly, while R_f values for other multiples of 0.1 cm may be obtained using extrapolation factors. They comprise the cases of solvent-front distances from 29.6 to 30.0 cm and from 39.6 to 40.0 cm. These values of solvent-front distances are adaptable to both one- and 2-dimensional chromatography.

545.844:518.3
Chromatographic analysis - Paper chromatography.

146. Computation of Rf values in paper chromatography. I. Use of nomograms. Salvador M. Fanega. *Philippine Lumberman*, June 1973, v.19, no.6, p.10, 12. illus. 1 ref.

The construction and use of 2 nomograms for the calculation of R_f (rate of flow) values are described. The first is applicable to the general technique of one- or 2-dimensional paper chromatography where the solvent front does not exceed 50.0 cm due to proper adjustment of irrigation time. The second is to be used with solvent-front distances pre-set at a multiple of 10 cm.

547.546:543.253
Nitrobenzene. Polarographic analysis.

147. Electronic and structural effects on rates and equilibria. II. Linear free energy relationship in polarographic reduction of nitroarenes. Bun-pok Ku and Wendel Y. Lim. *Philippine Journal of Science,* June 1971(1973), v.100, no.2, p.115-129. graphs, tables. 30 refs.

Twelve substituted nitrobenzenes (nitroarenes) and benzaldehyde were polarographically reduced using the dropping mercury electrode method. The half-wave potentials which are dependent on the electronic and structural effects inherent in the compounds under study were obtained for the *ortho-, meta-* and *para-*substituted nitroarenes. Linear free energy correlation was observed with the *meta* and *para* isomers but the *ortho* analogs deviated significantly and could be correlated among themselves. Results are explained in terms of *ortho* or proximity effects and other modern chemical theories.

547.567:66.094.18
Dehydrogenation. Quinones.

148. Electronic and structural effects on rates and equilibria. III. Solvent and substituent influence in dehydrogenation with quinones. Raul C. Obach and Wendel Y. Lim. *Philippine Journal of Science,* Sept.-Dec. 1971(1973), v.100, nos.3-4, p.251-260. graphs, tables. 23 refs.

Using 3 different quinones, the dehydrogenation of 9, 10-dehydroanthracene was carried out individually in 4 separate solvents. The reactivity pattern of the quinones was observed to follow the order: 2, 3-dichloro-5, 6-dicyanobenzo-quinone>2, 3, 5, 6-tetrachlorobenzoquinone (chloranil)>2, 5-dehydroxy-3, 6-dichlorobenzoquinone (chloranic acid). The sequence of reactivity in different solvents for each quinone followed the trend: ethanol>n-amylalcohol>chlorobenzene>1, 4-dioxene. Rate constants were determined for each case and results are explained in terms of polar reaction mechanism. Attempts to utilize the above results in the conversion of nonconjugated unsaturated fatty esters of lumbang oil [*Aleurites moluccana* (Linn.)] to highly polyunsaturated and conjugated esters, showed low conversion.

547.992.3
Lignin.

149. Lignin. F. G. Abejo (FORPRIDECOM, College, Laguna). College, Laguna, Forest Products Research & Industries Development Commission, June 1973. 3p. 12 refs. (Technical note no. 130)

Lignin is one of the principal components of wood, which binds the cells in wood and makes the whole wood stiff and rigid. Its varied aspects, detection, methods of isolation, quantitative determination and structure are briefly discussed. Studies showed that the average lignin contents of Philippine softwoods, hardwoods, bamboos and abaca fibers are 31.0, 25.7, 23.0 and 10.0%, respectively.

GEOLOGY

553.43 553.462
Copper deposits. Molybdenum deposits.

150. The low grade copper-molybdenum deposit at Bessemer Area of Philippine iron mines. Honorio O. Uriarte and Erlin G. Valera. *Philippine Mining Record,* Feb. 1973, v.7, no.3, p.12-16. illus. 5 refs.

Exploration works conducted on Cu-Mo deposit at Bessemer Area, Larap, Jose Panganiban (Camarines Norte) consisted of geologic mapping and sampling, tunneling-aditting, diamond core drilling and bench-channel sampling. The mineralization is located stratigraphically below the low grade iron deposit area and may be classified under contact metamorphic or replacement type of deposit. Higher grade Cu-Mo mineralization occurs in the form of beds, pockets and patches and increases appreciably as the iron content drops in the continuing bed of favorable skarn zone. Studies revealed that Cu-Mo deposit can be profitably exploited and economically mined by the conventional open-pit method, with Cu-and Mo as the major products, and pyrite and magnetite as by-products.

553.61:549(914)
Soils, Clay. Mineralogy.

151. Clay mineralogy of Philippine Negros soils. Jefren L. Demetrio, Roscoe Ellis, Jr. and Gary M. Paulsen (Dept. of Agronomy, Kansas State University, Manhattan, Kansas, USA). *Philippine Sugar Institute Quarterly,* April-June 1973, v.19, no.2, p.34-46. tables. 14 refs.

The clay mineralogy of 15 representative soil profiles was studied using x-ray diffraction techniques. Montmorillonite dominated soils of the flat lowlands and was present in all such soil types studied. Kaolinite was in all soils except Silay fine sandy loam wherein metahalloysite was observed. Halloysite was in the C_2 horizons of San Manuel loam and in the Silay fine sandy loam, possibly revealing high temp. effects on the parent material. Feldspar was in all soil types except San Manuel loam where goethite was noted. Gibbsite, geothite and quartz were in the lower horizons of Silay fine sandy loam.

3 soil types of the rolling upland derived from sedimentary materials showed the presence of montmorillonite, kaolinite and chlorite. Chlorite was predominant in Bolinao Clay soil type. Quartz was in all soil types. Cristoballite, geothite and diaspore were abundant in Bago loam soil type. 6 soil types derived from igneous rocks exhibited varied clay make-ups. Montmorillonite and kaolinite were in all soil types. Clinochrysotile was in the Guimbalaon clay, Tupi fine sandy loam and La Castellana clay loam. Clay mineral interstratifications of illite-montmorillonite and illitechlorite-montmorillonite were in the Guimbalon loam goethite, feldspar quartz and diaspore were in some soil types.

Kaolinite and goethite, which exhibited very well defined diffraction lines in all patterns, were the only clay and mineral, respectively, in soils of the rough mountainous land.

BOTANY

581.143
Growth regulators - Plants.
2-Chloroethanephosphonic acid.
Fruit, Ripening of.

152. Ethrel, a plant growth regulator. Nestor Bondad (College of Agriculture, UPLB, College, Laguna). *Philippine Biota,* Feb. 1973, v.7, no.3, p.113-115. table. 10 refs.

Ethrel is a trade name for (2-chloroethyl) phosphonic acid which produces numerous physiological effects when applied to plant tissues. It is stable in aqueous solutions below a pH of 4.0. It may retard or induce abnormal growth, inhibit flowering, defoliate or, in extreme cases, kill the plant when used at excessively large amounts. However, with proper concentration and dipping, it hastens the ripening of some fruits.

The best levels and durations of ethrel used in the postharvest ripening of banana, citrus, coffee, papaya and tomato are given.

581.4:582.757.2 676.16
Wood fiber. Wood pulp - Testing.

153. Study on the fiber morphology and pulping quality of balanti [Homalanthus populneus (Gaisel.) Pax.]. R. Z. de la Cruz and E. C. Fernandez (College of Forestry, UPLB, College, Laguna). *Philippine Lumberman,* Jan. 1973, v.19, no.1, p.34, 36, 38, 40, 42, 44. graphs, tables, illus. 22 refs.

The fiber morphology and pulping quality of balanti [*Homalanthus populneus* (Gaisel.) Pax.] were evaluated at FORPRIDECOM, College, (Laguna). Results showed that the fiber length of this species increased quadratically from the pith outwards. Along the height levels, fiber length significantly increased to a maximum of about 2 ft from the ground and decreased or varied towards the upper levels. Along the branches, fiber length decreased from the point of origin of the branch towards the upper portion. As a whole, fibers of the branches are much shorter than the fibers in the trunk. Moreover, this species was found suitable for pulp and papermaking particularly in the manufacture of bag and wrapping paper.

581.4:633.58(914)
Bamboos.

154. Anatomy of some bamboo species in the Philippines. Dietger Grosser and G. Isidro Zamuco, Jr. *Philippine Journal of Science,* March 1971(1973), v.100, no.1, p.57-73. plates, table, illus. 29 refs.

The anatomy of erect and climbing bamboo species represented by kawayan-kiling (*Bambusa vulgaris* Schrad. ex Wendl.), kawayan-dilaw [*B. vulgaris* var. *striata* (Lodd.) Gamble], bayog (*Dendrocalamus merrillianus* Elm.), *Dinochloa scandens* suctt. non O. Kuntze and bikal [*Schizostachyum diffusum* (Blanco) Merr.] was investigated to determine the possibility of identifying and segregating one from the other. Based on the shape, size, number and arrangement of the vascular bundles, the anatomical structure of erect bamboo species was found to be completely different from climbing bamboo species, thus, they could be identified and segregated. However, the climbing bomboo species have no distinct anatomical differences to identify or segregate them individually.

582.26:581.5(914)
Algae - Ecology.

155. Algal communities of exposed and protected marine waters of Batangas and Bataan. Gregorio T. Velasquez, Dorotea F. Cornejo, Alejandro E. Santiago and Luz Baens-Arcega. *Philippine Journal of Science,* March 1971(1973), v.100, no.1, p.1-40. map, plates, tables. 18 refs.

Sixty-nine species of marine benthic algae are briefly described and classified as belonging to Chlorophyta, Phaeophyta and Rhodophyta. The exposed littoral zones of Batangas were found to have 24% more algal species than those of Bataan; while the protected waters of Batangas yielded 61% more species than those of Bataan. The poor growth of algae in Bataan may be attributed to the discharge of pollutants from the oil refinery in Limay and by the dark fine sandy-muddy substratum and slightly turbid water.

Of the species studied, 3 belonging to Phaeophyta and 4 to Rhodophyta are potentially good sources of alginic acid, alginates, agar and carrageenan. Presently, 7 species are being studied for their chemical and nutritive values.

582.382:581.4
Selaginella.

156. Morphological studies on the genus Selaginella of the Philippines: I. Leaf epidermal elements, II. Shoot apical meristems, and III. Sporangial development. Victoria Bagaoisan-Cosico. Los Baños, Laguna, Graduate School, University of the Philippines, 1972, 18*l*. 116p. tables, illus. 9 refs. (Thesis. M. S. in Agricultural Botany)

Ordinary elongated and phygonal cells, sclerotic fibers, warty elongated and polygonal cells, stomata and hairs or cilia are some of the leaf epidermal elements found in the 10 Philippine *Selaginella* species, namely: *S. aristata* Spring, *S. biformis* A. Br., *S. cupressina* A. Br., *S. delicatula* (Desv.) Alston, *S.* sp. (a), *S. jagorii* Warb., *S. nummularia, S.* sp. (b), *S. peltata* Presl. and *S. philippina* Spring. The 2 types of shoot apical organization exhibited by the species were the single apical cell and a group of apical initial organizations. However, all of the species showed similar patterns of tissue organization.

582.394:581.45
Ferns.

157. Notable variations in leaf forms of Drynaria. P. M. Zamora and N. S. Vargas (Natural Science Research Center, University of the Philippines, Quezon City). *Philippine Agriculturist,* June-July 1973, v.57, nos.1-2, p.55-71. illus. 9 refs.

Among the 4 species of *Drynaria* examined, leaves transitional between typical juvenile, intermediate, adult type of foliage leaves and typical nest leaves have been found in fairly high degree of incidence in *D. quercifolia* and *D. rigidula.* The significance of said transitional types relative to the postulated origin of leaf dimorphism in *Drynaria* from the Drynariopsis type is discussed. The transitional leaves are interpreted as representing ontogenetic reversions of the metamorphosed nest leaves to the original form, i.e., general purpose type of leaf such as that of Drynariopsis. It is suggested that the tendency of the frond to revert back to their original form may have been triggered by the extreme stress of an unusual environment thereby unmasking temporarily the ancestral condition.

582.394(914)
Ferns.

158. Nectary-costule association in Philippine drynarioid ferns. P. M. Zamora and N. S. Vargas (Natural Science Research Center, University of the Philippines, Quezon City). *Philippine Agriculturist,* June-July 1973, v.57, nos.1-2, p.72-88. tables, illus. 7 refs.

The occurrence, number and position of nectaries on the fronds of 10 drynarioid species are given. 2 types of pattern or association based on the position of these structures relative to the costae and costules are distinguished, i.e., Type I or hypo-epicostular nectary type and Type II with 2 sub-types, thus IIa or hypocostular nectary and IIb or epicostular nectary types, and their systematic and evolutionary significance and inter-relationships discussed. The hypo-epicostular nectary condition is interpreted as the basic nectary type from which the hypocostular and epicostular nectary conditions may have been derived. The hypocostular type is the characteristics of Drynariopsis, Aglaomorpha, Photinopteris, Thayeria and one of the species of *Drynaria,* i.e., *D. rigidula,* while the epicostular type is the characteristics of the other 3 species of *Drynaria.* It is suggested that the foregoing difference in nectary conditions in addition to several other morphological differences between *D. rigidula* and the other species render *D. rigidula* susceptible to separation from *Drynaria.*

582.475
Pine - Benguet pine.

159. Estimates of genecological parameters for certain quantitative characters of Benguet pine. Bernardo C. Sinues (College of Forestry, UPLB, College, Laguna). *Philippine Journal of Forestry,* First-Fourth Quarter 1966-1970(1973), v.22, nos.1-4, p.87-115. appendix, graph, maps, tables. 30 refs.

Five characters of 17-yr-old Benguet pine (*Pinus insularis* Endl.) trees found in the Kennon Road Reforestation Project at Tuba (Benguet) were investigated. The phenotypic performance of the species was evaluated in terms of frequency distribution, averages and coeficients of variation. Of the tree characters studied, forkiness showed the highest degree of variability (71.19%) while the other tree attributes showed very low coefficients of variation ranging from 16.42 to 27.14%. Generally, the overall performance of the trees was found satisfactory.

Of the 4 regression lines (linear, quadratic, cubic and quartic) tested, each of the pairs of tree attributes indicated a highly significant linear relationship. Heritability index representing the ratio of the total genotypic variance over the total phenotypic variance was also derived for each character.

ZOOLOGY

591.4
Parasites. Citrus psyllas.

160. Gross morphology of parasites associated with citrus psylla, (Diaphorina citri Kuway). Dante R. Panaligan and Ciriaco S. Celino (Dr. Manuel L. Roxas Memorial Experiment Station, Bureau of Plant Industry, Lipa City). *Animal Husbandry and Agricultural Journal,* March 1973, v.8, no.3, p.10. 1 ref.

Briefly described are the different endoparasites belonging to family Encyrtidae, Eulophidae and Thysanidae, namely: 1) *Psyllaephagus* sp.; 2) *Marietta javensis* Howard; and 3) *Chartocerus muscidiformis* Mots. All the nymphs studied have been parasitized in the field before they were collected. In all cases, the nymphs were in the last or next-to-last instar before they showed evidence of being parasitized. The activity of nymph diminishes as the parasite larva develops. The nymph is represented by its exoskeleton which assumes a swollen parchment-like appearance, brownish in color and stick at or along leaf margin, which at this stage, the parasite larva/pupa can be seen through nymphal integument. The parasites pupate, and emerge by cutting a circular hole in the dorsal surface of th psyllid's abdomen.

594.3:591.5
Snails - Ecology. Lymnaea auricularia
rubiginosa.

161. The use of CO^{60} in studying the ecology of Lymnaea auricularia rubiginosa. B. de la Cruz, S. Bautista, V. Sahadevan, G. Asprer, L. Ibe (Philippine Atomic Energy Commission, Quezon City) and D. Cabrera, P. Dumag and J. Alcantara (Bureau of Animal Industry, Manila). *Philippine Journal of Animal Industry,* First-Fourth Quarter 1970-1972(1973), v.29, nos.1-4, p.21-53. graphs, tables, illus. 6 refs.

Results of investigations revealed that CO^{60} labelled *Lymnaea* snails, whose radioactivity uptake varied according to sizes and labelling time, can breed and reproduce in the laboratory with no evidence of transferring CO^{60} to their progenies. The natural half life of the labelled and controlled snails was estimated to be 16 days. The movement and dispersion of the labelled snails were observed to be rapid in areas without vegetation and sluggish in an aquatic environment. They tend to stay or localized in the experimental sites as well as in other breeding places unless they are carried away by floods after a heavy rain. No relationship between the snail movement and changes in humidity and temp. of the air was observed. CO_3 was found in water samples obtained from places without *Lymnaea* snail indicating that CO_3 in the water is being utilized by this snail.

595.771(914)
Mosquitoes.

162. On Philippine mosquitoes, IV. A new species of Armigeres, subgenus Armigeres (Diptera: culicidae). Ruben G. Basio (Bureau of Quarantine, Manila) and Lolita S. Basio (Makati Medical Center, Makati, Rizal). *Philippine Journal of Science,* March 1971(1973), v.100, no.1, p.53-56. illus. 4 refs.

A new species, *Armigeres* (*Armigeres asurini*) is described. It differs distinctly in the shape of terminalia from those of *A. baisasi, A. joloensis* and *A. kuchingensis.*

595.771(914)
Mosquitoes.

163. On Philippine mosquitoes, VI. Tripteroides (Tripteroides) Reiseni a new species (Diptera: Culicidae). Ruben G. Basio and Lolita S. Basio. *Philippine Journal of Science,* June 1971(1973), v.100, no.2, p.103-105. illus.

A new species of mosquito, *Tripteroides (Tripteroides)* Reiseni found in Mt. Makiling, Los Baños (Laguna), is described. It differs distinctly in the male terminalia. The 3 subgenera are *Tripteroides* for the ornamented species, *Rachisoura* and *Rachionotomyia* for the non-ornamented species.

599.323:575.17
Chromosomes - Rats.

164. A comparative chromosome study of Rattus rattus mindanensis and Rattus argentiventer. Doris H. Wurster and Gerry C. Atwell. *Philippine Agriculturist,* Dec. 1972-Jan. 1973, v.56, nos.7-8, p.243-250. illus. 26 refs.

Results of comparative karyotype studies of 9 *R. r. mindanensis* and 7 *R. r. argentiventer* showed that the 2 species can be consistently identified by differences in their sex chromosomes particularly the Y chromosomes. There is a karyotypic basis on which to place these 2 forms into separate categories, and karyotypic evidence that the terms *R. r. mindanensis* and *R. r. argentiventer* may not be used synonymously.

599.323:575.24:539.12.04
Rats - Genetic research. Radiation genetics.

165. Observations on the induction of mutation by ionizing radiation in Rattus rattus SSP. F. I. S. Medina, B. de la Cruz, C. L. Madriaga, S. P. Eslit-Barber, V. P. Evarretta and J. S. Gregorio (Philippine Atomic Energy Commission, Quezon City). *Animal Husbandry and Agricultural Journal,* March 1973, v.8, no.3, p.28-30. illus. 9 refs.

Two strains of *Rattus rattus* sp., *R. r. mindanensis* and *R. r. argentiventer,* were exposed to radioactive materials either in pairs or only the male or female. Physical abnormalities and other changes, such as hairless, satin-like fur, runt (diminution) and eye cataract in *R. r. mindanensis,* were observed in dosed animals and its succeeding generation while large and albinism in *R. r. argentiventer.* Preliminary observations indicated the latent potential of induced genetic translocation utilizing internal and/or external sources of ionizing radiation as a means of controlling field rat population.

599.323:591.16
Rats - Breeding.

166. A study on the adaptation and breeding of the field rats (Rattus rattus sp.) in the laboratory. F. I. S. Medina, C. L. Madriaga, B. de la Cruz, V. Paguirigan, E. Padrelanan, S. P. Eslit and J. S. Gregorio (Philippine Atomic Energy Commission, Quezon City). *Philippine Agriculturist,* Dec. 1972-Jan. 1973, v.56, nos.7-8, p.274-279. table, illus.

Thirteen of the 14 pairs of field rats (*R. r. mindanensis* Mearns) collected from Cotabato (Mindanao) successfully bred in 12 mo. of trial breeding. Observations on food preference, behavior in captivity, frequency and size of litters and breeding activity are briefly discussed.

599.323:591.5
Rats - Habits and behavior.

167. The effect of rain and shower in the feeding activity of Cotabato field rats. J. P. Sumangil. *Philippine Agriculturist,* Dec. 1972-Jan. 1973, v.56, nos.7-8, p.267-273. tables. 4 refs.

Ricefield rats (*Rattus rattus argentiventer)* were baited continuously in the presence of rain and shower for 8 mo. Study showed the following results: 1) prolonged night rain, following 3 or more dry days, caused a decrease in bait consumption of 69.01% while prolonged or scattered night shower following a dry period caused a significant decrease of 54.08%; 2) no significant difference in intake before and during a night rain of short duration was noted; 3) the effect of prolonged night rain, night rain of short duration, and prolonged or scattered night shower on bait consumption of the rats following a dry period showed recovery rates of 81.36, 89.96 and 94.50%, respectively; 4) successive night rain or shower caused a reduction of 46.38% during the first night and a near complete recovery of 97.04% in the second night indicating the limit of rain or shower as a factor of reduction; and 5) afternoon rain or shower following a series of dry days increased bait intake by 93.95%.

The use of poison baits in rats when the chances of increased consumption are assured and the avoidance of its application when rats are expected to react with reduced activity would be effective procedures in rat reduction programs.

599.323:633(914)
Rodents - Philippines.

168. Rodents of the Philippine croplands. Kyle R. Barbehenn, Jesus P. Sumangil and Justiniano L. Libay (Rodent Research Center, College, Laguna). *Philippine Agriculturist,* Dec. 1972-Jan. 1973, v.56, nos.7-8, p.217-242. map. 35 refs.

Field collections of rodents were made throughout the Philippines from Jan. 1969 to May 1971 at lowland rice areas and other agricultural situations. The pest species considered were *Rattus rattus mindanensis, R. r. argentiventer, R. r. exulans* and *R. r. norvegicus.* They were observed to inhabit rice fields apparently as self sustaining populations, but with only one species predominating in any particular situation. New distribution records are reported, the most noteworthy of which are *R. r. latidens, R. r. (Tryphomys) adustus, R. r. argentiventer* and *Chrotomys whiteheadi* in the lowlands of Luzon. Destruction of most forest habitats will probably hasten the extinction of some rarer rodent species and increase in the area occupied by the densities of pest species. The taxonomy, identification, geographical distribution, habitats and economic importance of each species are discussed.

599.4:591.5
Bats - Food and feeding.
Bats - Habits and behavior.

169. Feeding habits of pteropid bats. Luzviminda Guerrero and Angel Alcala. *Philippine Biota,* May 1973, v.7, no.4, p.139-142. 5 refs.

Six species of fruit bats, namely *Cynopterus brachyotis luzoniensis, Rousettus amplexicaudatus, Macroglossus lagochilus, Ptenochirus jagorii, Eonycteris spelaea* and *Pteropus tablasi* were collected in a 3.5 ha. orchard farm in Maslog, Sibulan (Negros Oriental) planted with guava trees (*Psidium guajava* L.), chico trees (*Calocarpum sapota* Merr.) and caimito trees (*Chrysophyllum caimito* L.). The first 2 species were found the most predominant. The fruit bats were observed actually feeding on the ripe fruits. Dissected specimens revealed that they swallow the fruit juice but spit out most of the solid parts, such as seeds. Considerable damage of these bats to fruit trees was also observed.

MEDICAL SCIENCES
PHYSIOLOGY

612.015.6:616-053.2
Cyproheptadine - Therapeutic use.

170. Effect of Cyproheptadine on weight gain among convalescing children. Leticia C. Yap. *Philippine Journal of Pediatrics,* April 1973, v.22, no.2, p.60-69. tables. 9 refs.

Forty-five children of both sexes ranging in age from 10 mo. to 10 yrs old were treated with Cyproheptadine at a daily dose of 5-10 ml and a placebo for a period of 16 wks, 42 of which were convalescing from various diseases. An average weight gain of 5.064 lb and linear increase of 1.80 cm were observed among the subjects receiving Cyproheptadine compared to 3.242 lb and 1.07 cm in the placebo group, correspondingly. No untoward side effects were observed with Cyproheptadine and it was found safe during the entire period of treatment.

612.12(=914)
Manganese - Blood.

171. The manganese concentration in red blood cells & serum of Filipinos. Benjamin de la Cruz, L. Lansangan, G. Asprer, E. Padrelanan, T. Tagorda and A. Tajon. *Journal of the Philippine Medical Association,* June 1973, v.49, no.6, p.313-320. tables, illus. 7 refs.

The study was conducted on blood obtained from 75 male subjects aged 45-66 yrs using neutron activation analysis. Results showed that the mean concentration of Mn in the red blood cells and serum of patients with old myocardial infarct (0.57 ± 0.45±μg/g and 0.23± 0.18 μg/g) and patients with diabetes mellitus (0.55 ± 0.4 μg/g and 0.24 ± 0.19 μg/g) were higher than the normal levels of 0.11 ± 0.08 μg/g and 0.19 ± 0.16 μg/g, respectively.

Most of the Mn content of the blood are firmly bound with the hemoglobin portion of the red blood cells. It is further indicated that the red blood cells and serum Mn level might be correlated with coronary heart disease and diabetes mellitus. The importance of the investigation is discussed.

612.63:614.1
Contraceptives, Oral - Administration & dosage.

172. A clinical study of a minimum dose combined oral contraceptive: (0.4 mg. Norethindrone with 0.035 mg. Ethinyl estradiol [micropil]). Ruben Apelo, Nellie Arao-Antigua and Grace Mendoza (International Post-Partum Program, Philippine General Hospital, Manila). *Filipino Family Physician,* April-June 1973, v.11, no.2, p.15-23. tables, illus. 8 refs.

Two hundred women, aged 15-40 yrs old, were given 0.4 mg Norethindrone combined with 0.035 mg Ethinyl estradiol on a 21-27 day cycle for 21 mo. The combination was found to be effective and acceptable in inhibiting ovulation and suppressing fertility with the minimum side effects.

612.63:614.1
Contraceptive agents - Pharmacodynamics.
Medroxyprogesterone.

173. Depo-provera: an effective contraceptive agent. Ruben A. Apelo and Julieta R. de la Cruz. *Journal of the Philippine Medical Association,* April 1973, v.49, no.4, p.179-186. graphs, tables. 5 refs.

A single injection of Medroxyprogesterone acetate at a dose of 300 mg (100 mg/c.c.) once every 6 mo. was administered to 105 healthy women ranging in age from 15 to 45 yrs. Results showed that in 1658 treatment cycles, 2 pregnancies occurred. In both cases, conception was estimated to occur in the 5th mo. after an injection. The drug was found effective, very acceptable and convenient form of contraception. A high continuation rate of 75.2% after $2^1/2$ yrs was obtained. Side effects were tolerated by the patients. Only 2.8 and 1.8% discontinued treatment due to amenorrhea and irregular bleeding, respectively.

FOOD AND DIETETICS

613.22:612.398
Infant's Food - Food value.
Coconut - Protein content.

174. Coconut protein for feeding young children. Estelita M. Payumo (National Institute of Science & Technology, Manila). [Manila, 1973]. 12p. tables. 14 refs. Mimeographed. (Paper read at the 2nd Asian Congress of Nutrition, Jan. 12-17, 1973, Manila)

MCM, a high protein food composed of 80% mung bean (*Phaseolus aureus,* Roxb.) flour, 15% coconut flour and 5% non-fat dry milk, was formulated at Food & Nutrition Research Center, National Institute of Science and Technology (Manila). The formulation was found to be acceptable, well, tolerated and promoted growth response comparable to those good quality protein food sources usually fed to children of the same age group. MCRF, a mixture of mung bean flour, coconut flour, rice flour and fish protein concentrate with 21% protein was also developed. A similar weaning food product was also formulated by substituting coconut skim milk for the protein isolate with the addition of vitamins, vegetable oil and other ancillary ingredients, precooked and dried into flakes.

613.24(914)
Malnutrition - Man.

175. Problems on the use of indices of malnutrition - the Philippine example. Josefina Bulatao-Jayme, Angelina A. Bayan and Georgina Ochoa. [Manila, 1973]. 14p. 2ℓ. graphs, tables, illus. 17 refs. Mimeographed. (Paper read at the 2nd Asian Congress of Nutrition, Jan. 12-17, 1973, Manila)

The malnutrition problem with the 1-4 yr-old group as model viewed from various angles is discussed. The nutritional indices are still on the low side of the mid-point, in spite of the high percentile level (90th) of the recommended standards based from the comparison of data of heights and weights obtained from dietary, biochemical and clinical regional surveys and data from higher income group. The nutritional index, applying the Dugdale's nutritional indices by sex, age and weight percentile, correlates with increasing percentile level indicating an improved nutritional status in both sexes and at each age group. However, only the 10th, 30th and 50th percentiles for males and up to 70th percentile for females correlate with age. No marked difference was observed in the percentage distribution of malnutrition among the children between the Philippine and Harvard Weight Standards. Ford's method is recommended for use in classifying groups of children but not for monitoring the growth of an individual child.

It is suggested that a nutrition index be developed soon for accurate calculation of the nutritional state of the country.

613.26:641.1
Vegetables - Carotene content.

176. The availability of carotene in some Philippine vegetables. II. Mustasa, gabi leaves, saluyot and kalabasa tops. Iluminada C. Ortaliza, Isabel F. del Rosario, Marcosa H. Santos, Corazon G. Aguilar and Loreto M. Dumada-ug (National Institute of Science & Technology, Manila). *Philippine Journal of Science*, June 1971(1973), v.100, no.2, p.95-102. tables. 7 refs.

The carotene availabilities of mustasa, gabi leaves, saluyot and kalabasa tops were estimated using liver storage test with albino rats as experimental animals. Relative to beta-carotene in oil, the percent carotene availabilities of mustasa, gabi leaves, saluyot and kalabasa tops were 53%, 38.7%, 21.43% and 18.82%, respectively. When the total beta-carotene content and the percent availability were considered, mustasa was found to supply 12.69 mg/100 g; gabi leaves, 10.51 mg/100 g; saluyot, 4.15 mg/100 g; and kalabasa tops, 2.49 mg/100 g of available carotene.

PUBLIC HEALTH

614.31:637.5:636.293 614.9
Meat inspection. Veterinary hygiene.

177. Meat hygiene and inspection of carabeef. Primo Arambulo, III (Institute of Public Health, University of the Philippines, Manila). *Philippine Journal of Nutrition*, April-June 1973, v.26, no.2, p.79-93. 16 refs.

The different aspects of meat hygiene practices and inspection procedures for carabeef are briefly discussed. The carabeef-borne zoonoses in the Philippines are also given. Proper cooking and consumption of carabeef from slaughtered and inspected animals were found effective in preventing carabeef-borne zoonoses.

614.71
Air pollution.

178. Pollution of the atmosphere by formaldehyde in textile market. Glarita C. Centeno, Elena F. Pacis and Elmera Matutina (Dept. of Health, Manila). *Philippine Journal of Public Health*, Jan.-March 1973, v.18, no.3, p.188-196. 16 refs.

Results of the investigations conducted using the Gelman Automatic Sequential Sampler showed that the concentration of formaldehyde in the atmosphere was below the threshold limit value of 5 ppm. The formaldehyde concentration of 1.35 ppm during the day was found not hazardous to health and can be tolerated by individuals with slight discomfort but without producing serious health effects except some irritant reactions and sensitization in some individuals. Continuous exposure to the levels found results in acclimation and tolerance with no cumulative effect demonstrated.

PHARMACY. PHARMACOLOGY

615.32:616-006.6
Botany, Medical.

179. Screening of Philippine woods for anticancer agents. S. M. Fanega (De la Salle College, Manila), J. S. Raval and V. A. Masilungan (National Institute of Science & Technology, Manila). *Philippine Lumberman*, May 1973, v.19, no.5, p.8, 10, 12. table. 17 refs.

Of the 14 different Philippine wood species tested for inhibitory activity against Ehrlich ascites tumor cells, 11 species exhibited positive activity in some extracts. All of the 3 *Dipterocarpus* species of the family Dipterocarpaceae studied failed to show any anticancer activity in all extracts with 9 solvents, in contrast to the positive results observed on the extracts of *Shorea, Pentacme* and *Anisoptera* species of the same family. This suggests that antitumor activity might be caused by one or more compounds characterized by a particular genus or species.

615.71:616.15
Antihypertensive agents.
Clonidine - Therapeutic use.

180. Clonidine-Cyclothiazide on Filipino patients. Ramon S. Hervas (UST Hospital, Manila). *Filipino Family Physician*, Jan.-March 1973, v.11, no.1, p.7-14. tables. 24 refs.

Clonidine-Cyclothiazide combination was tried in 26 females and 8 males with arterial hypertension. The drugs were given at a dose ranging from 1/2 to 3 tablets/day. Clonidine-Cyclothiazide combination was found to be an effective and safe antihypertensive drug, and could compare favorably with other antihypertensive drugs. No side effects were noted except slight nausea. Electrolyte disturbance was almost neglible.

615.779
Antibiotics - Residues.

181. Recent findings on the use of antibiotics in animal production and health. Teodulo M. Topacio (College of Veterinary Medicine, University of the Philippines, Quezon City). *Science Review,* Jan.-Feb. 1973, v.14, no.1, p.15-27. 15 refs.

The basic findings made on the veterinary, medical and non-medical use of antibiotics revealed the presence of antibiotic residues in animal products taken by man and the development of antibiotic resistance among bacteria affecting both man and animals.

Significant recommendations on the use of antibiotics for both animals and man are presented.

615.779
Antineoplastic agents - Therapeutic use.
Actinomycin.

182. Antitumor activity of locally-isolated actinomycin. Benjamin D. Canlas, Leticia T. Angeles and Patrocinio Sevilla-Santos. *Journal of the Philippine Medical Association,* June 1973, v.49, no.6, p.263-298. graphs, illus. 26 refs.

In vitro studies on actinomycin complexes isolated from a locally-grown streptomyces cultures S-67-3 and S-62-30 revealed significant activity against Ascitic tumor, TB bacillus and Gram-positive bacteria. *In vivo* studies on 3 experimental tumors showed inhibition of Ehrlich Ascites Carcinomas in Swiss albino and Leukemia L-1210 in DBA/2 and DBF_1 mice but not Sarcoma (S-180) in either C57 or the local strain of white mice. It was also shown that S-67-3 has a higher antitumor activity and a lower toxicity as compared with S-62-30. Implications in therapy are discussed.

Significant alteration in tumor membrane phospholipoprotein was observed at high dose levels of 20 μg/kg and 40 μg/kg as assessed by thin-layer chromatography. The role of cyclic-adenyl cyclase system in membranes in relation to "contact inhibition" is also discussed with projections into wound healing, embryogenesis, differentiation, aging and cancer.

615.78:616-053.2
Child behavior disorders - Drug therapy.

183. Psychotropic drugs in childhood disturbances. Horacio R. Estrada. *Philippine Journal of Pediatrics,* June 1973, v.22, no.3, p.145-148. 9 refs.

Psychotropic drugs modify certain target symptoms facilitating the handling of patients, the search for root causes, and other aspects of treatment and enable some severely disturbed children to participate in group activity and speech classes. The general comments, effectivity, uses and dosage of psychotropic drugs which include tranquilizers (both major and minor), antidepressants, CNS stimulants and hypnotics are given.

DISEASES. PATHOLOGY

616-084
Preventive medicine.

184. Chemoprophylaxis. Nelia Cortes Maramba and Ernesto V. Valdez (College of Medicine, University of the Philippines, Manila). *Journal of the Philippine Medical Association,* March 1973, v.49, no.3, p.167-170. 7 refs.

Generally, chemoprophylaxis is advocated to protect healthy individuals, patients with chronic diseases, patients considered to be at high risk or comatose patients and those who are highly susceptible to infectious diseases. The conditions in which chemoprophylaxis is of utmost value are in streptococcal and meningecoccal infections, asymptomatic bacteriuria of pregnancy and tuberculosis. Due to variable factors, chemoprophylaxis is of doubtful value in chronic bronchitis, intestinal and cardiac surgeries, prolonged labor with ruptured membranes and severe burns. On the other hand, chemoprophylaxis is not indicated in "clean" surgery, cardiac catheterization, instrumentation of the bladder and urological surgery, neuro-surgery, viral infections and peritoneal dialysis.

616.13-053.1
Mitral valve stenosis - Congenital.

185. Congenital mitral stenosis. Report of a case with review of literature. Leticia P. Lucero, Leticia S. Cordero and Chonilo O. Ruiz (Nicanor Reyes Medical Foundation Hospital, Far Eastern University, Manila). *Philippine Journal of Pediatrics,* April 1973, v.22, no.2, p.82-92. graph, illus. 37 refs.

A case of congenital mitral stenosis in a

12-yr-old boy initially mistaken for bronchial asthma is presented with complete post-mortem findings confirming the diagnosis. Symptoms observed were shortness of breath, exertional dyspnea and repeated pulmonary infections. The clinical manifestations, course and mitral valve morphology of this rare cardiac anomally are described.

616.24-02-053.2(=914)
616.24-085-053.2(=914)
Atelectasis - Etiology.

186. The problem of reversible and recurrent atelectasis in Filipino children. M. Pardo de Tavera, Leonor D. San Pedro, Liberty P. Marfil and Soledad S. Lapuz. *Chest Diseases,* June 1973, v.8, no.4, p.17-25. tables, illus.

Forty-four cases of an acute obstructive type of atelectasis in children aged 3 mo.-13 yrs are reported. Atelectasis is radiologically characterized by diminution in the size of the affected lung, lobes, lobe or segment. Dyspnea is the most common symptom of the disease. Long-standing atelectasis may result in abscess formation, interstitial fibrosis or bronchiectatic changes. Therapeutic management are rapid reaeration, expectoration of the occluding material and the use of steroids and antibiotics.

616.24-06 616.24-02
Pneumothorax - Complication.
Pulmonary edema - Etiology.

187. Unilateral pulmonary edema following treatment of spontaneous pneumothorax. Fermin M. Manalo and Glorioso V. Saturay. *Chest Diseases,* June 1973, v.8, no.4, p.26-29. illus. 6 refs.

A case of a right-sided spontaneous pneumothorax that developed pulmonary edema ipsilaterally and a concomitant contralateral pneumothorax during or immediately after the process of intrapleural intubation is reported. The rarity of this complication in the management of spontaneous pneumothorax is pointed out and the mechanism of its formation is discussed together with the explanations forwarded in the similar cases previously reported.

616.28
Otitis media - Occurrence.

188. Observation on otitis media among Grades I and IV pupils in Bay, Laguna. Alicia E. Quiroga (College of Medicine, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, April-June 1973, v.9, no.2, p.71-80. tables. 13 refs.

Of the 76 cases of otitis media followed up, the majority appear to have unilateral ear drum perforation, conductive hearing impairment, purulent aural discharge and cervical lymphadenopathy. Most of the cases had the disease before entering school. The incidence is high in the upland and lower income groups and is significantly high among males and Grade I pupils. Cases with aural discharge were treated with H_2O_2, oral medication and ear drops.

616.34-008.3-08
Diarrhea - Therapy.

189. The efficacy of oral electrolyte fluid in the therapy of diarrhea. Arturo C. Ludan and Jessica Del Mundo. *Journal of the Philippine Medical Association,* May 1973, v.49, no.5, p.243-252. tables. 8 refs.

Thirty children aged 2 mo.-6 yrs hospitalized for acute gastro-enteritis were used in the study. Results showed that the administration of oral electrolyte solution for maintenance fluid requirement is comparable to intravenous fluid therapy in the management of acute diarrhea. It is also convenient to administer as it requires less nursing care and more applicable in remote areas where facilities and equipment for intravenous therapy may be scarce, if not absent.

616.34-07
Oxyuriasis - Diagnosis.

190. A comparative study of the methods of diagnosis of enterobiasis in private practice. Esther O. Quirolgico (Children's Medical Center, Quezon City). *Philippine Journal of Pediatrics,* April 1973, v.22, no.2, p.70-73. tables. 9 refs.

The 4 methods of diagnosis of enterobiasis done in 90 patients aged 9 mo.-12 yrs were symptomatology, perianal inspection, scotch tape test and routine stool examination. Perianal inspection was found to be the most practical and accurate.

616.348-006.6
Colonic neoplasms - Surgery.

191. Neoplastic obstruction of the colon. Felix H. Tambuatco and Jose C. Pangan (Faculty of Medicine and Surgery, University of Santo Tomas, Manila). *Journal of the Philippine Medical Association,* Feb. 1973, v.49, no.2, p.41-56. illus. 22 refs.

Case reports on the occurrence of obstructing lesions in the different segments of colon and rectum and its surgical procedures and management are presented. The status of resection and primary anastomosis for obstructing left sided lesions is assessed and the clinical setting where the procedure may be carried out safely is discussed. The cause of a neoplastic illness is dependent on its natural history. A delay in diagnosis as a result of delayed consultation leads to the progressive stage of obstruction in cancer of the colon and rectum.

616.39:612-015.6
Thiamine deficiency - Occurrence.

192. Assessment of thiamine nutriture of some pregnant women, nursing mothers and their young children in Cainta, Rizal - biochemical phase. Miriam D. Kuizon, Benigna V. Roxas, Flora V. Azares, Amelia A. Dominguez and Rosita D. Salud. *Philippine Journal of Nutrition,* Jan.-March 1973, v.26, no.1, p.43-54. tables. 19 refs.

The thiamine nutriture of 131 children (aged 0-2 yrs) and 215 pregnant women and nursing mothers in Cainta (Rizal) was determined by clinical and biochemical assessments and by collection of dietary information. Results indicated the presence of thiamine deficiency among the subjects studied. Urinary thiamine excretion levels were found to be positively correlated with the transketolase activity. Hemoglobin levels were in the "low" to "deficient" range, indicating the presence of nutritional anemia, while the plasma protein values were generally high in the "acceptable" and "high" levels.

616.39-053.1/.2(=914)
Kwashiorkor - Occurrence.

193. Kwashiorkor marasmus among Filipino children admitted to a pediatric ward. Ciriaca Santos-Ubaldo (Institute of Public Health, University of the Philippines, Manila). [Manila, 1973]. 5p. tables. (Paper presented at the 2nd Asian Congress of Nutrition, Jan. 12-17, 1973, Manila)

Two hundred four infants, aged 3 mo.-5 yrs, with signs of kwashiorkor marasmus were examined from May 1971 to June 1972 by clinical and biochemical methods. Results showed that all subjects have signs indicative of severe protein calorie malnutrition, while 65% had signs of vitamin deficiencies. Conditioning infection was present and almost all had diarrhea. Blood examination indicated hypoproteinemia and anemia. Supplements were mainly carbohydrate rich foods and analysis of the diet revealed marked deficiencies in most of the food groups and nutrients. Analysis of ecological factors showed that malnutrition is related to educational attainment and income, however, birth order and family size were not related.

616.42-006.6:616-085
Lymphoma - Drug therapy.

194. Lymphoma survey: A collective experience in the Greater Manila Area. Deogracias Custodio, Reuben Guerrero, Felipe B. Manalo and Emiliana San Diego. *Journal of the Philippine Medical Association,* June 1973, v.49, no.6, p.321-327. graph, tables. 6 refs.

One hundred twenty three cases of malignant lymphoma (27 cases of Hodgkin's Lymphoma and 96 cases of non-Hodgkin's Lymphoma) were analyzed according to age, sex, geographic distribution, clinical staging, clinical features, response to therapy, survival time in relation to stage and response to therapy, and non-medical factors which directly affect the prognosis. Multiple drug combinations consisting mainly of Cyclophosphamide, Vincristine, Prednisone, Nitrogen mustard, Chlorambucil and Mitomycin were utilized. Prognosis was good, compatible with long term survival, especially in those who had adequate continuing therapy.

616.44-07
Thyroid gland function tests.

195. The Effective Thyroxine Ratio in the presence of organic iodide contamination. Luzviminda D. Torres and Flora M. Pascasio. *Acta Medica Philippina,* ser.2, April-June 1973, v.9, no.2, p.67-70. table. 15 refs.

Results of the relatively new *in vitro* thyroid test, the Effective Thyroxine Ratio (ETR), using Res-O-Mat ETR kits (Mallinckrodt Nuclear) in the presence of exogenous organic iodide showed that all the ETRs of the normal and euthyroid patients were within normal while corresponding Protein-Bound Iodine (PBI) values were still elevated; ETRs of thyrotoxic patients were all correspondingly increased. ETR can be used as a valid index of thyroid function even if done a few days after administration of the iodinated dye. Aside from being a good thyroid function test, ETR is locally available and has a high degree of clinical correlation even in patients who recently had radiographic contrast media.

616.44-085
Goiter, Endemic - Occurrence.
Goiter, Endemic - Prevention & control.

196. The endemic goiter control project of the Department of Health, Philippines (A preliminary report). Aida Agustin-Padlan and Dulcisima C. Ruelos. Manila, 1973. 3p. (Paper presented at the 2nd Asian Congress of Nutrition, Jan. 12-17, 1973, Manila).

Surveys on goiter prevalence and its control were conducted in Bay (Laguna), Tanauan (Batangas), Itogon (Benguet) and Baybay (Leyte). 1192 school children and 58 pregnant women were clinically examined and goiters were graded according to a WHO recommended classification size. Results showed that goiter is hyper-endemic among school children, adolescent girls, pregnant women and adult. Higher prevalence rates were found in females than in males, and also in mountainous, remote and coastal towns. Appreciable reduction in goiter size was noted after the injection of iodized oil. No untoward side effects were observed except the endemic cretinism in a few cases. It is suggested that injection of iodized oil among pregnant women be limited to minimize the occurrence of cretinism.

616.61-085
Uremia - Therapy. Hemodialysis.

197. Periodic hemodialysis in terminal uremia. Romeo S. Abella and Roberto Soriano (UST Hospital, Manila). *Journal of the Philippine Medical Association,* March 1973, v.49, no.3, p.157-164. graphs, table. 13 refs.

The treatment period on 30 unselected patients, aged 22-76 yrs, with terminal stage of primary renal disease unresponsive to medical management for over 3 1/2-yr period ranged from one to 17 mo. Results showed that dialysis was found effective in 50% of the patients, partially in 23%, and failed in the remaining cases. Survival rate was low due to lack of patients' cooperation and financial support. No significant untoward side effect was noted.

616.61-085:616-053.1
Infant, Newborn, Diseases.
Peritoneal dialysis.

198. Acute renal failure in a neonate with sepsis managed by peritoneal dialysis. Hilario S. Esguerra, III and Ludovina R. Buendia. *Journal of the Philippine Medical Association,* May 1973, v.49, no.5, p.238-242. 12 refs.

The case report seen in a male neonate with unknown cause of renal failure is presented. Peritoneal dialysis was performed at 8 days of age with no difficulty in the procedure. The patient was given Carbenicillin intravenously in 4 divided doses of 400 mgm/k/day. However, the infant died due to overwhelming sepsis. No postmortem examination was granted by the parents.

616.831-053.2
Brain diseases.

199. Reye's syndrome. A cause of acute encephalopathy in a child. Sonia G. Rosario, Venusto H. San Joaquin and Augusto Cezar B. Lastimosa. *Philippine Journal of Pediatrics,* June 1973, v.22, no.3, p.138-144. illus. 13 refs.

A case of Reye's syndrome in 3-yr-old male is reported. The syndrome consists of an acute and usually fatal encephalopathy associated with fatty infiltration of the liver and kidneys. Therapeutic measures include maintenance of adequate aeration, adequate glucose intake intravenously and correction of metabolic acidosis if present. The syndrome and its relationship to the acute toxic encephalopathy in children is discussed.

616.915-097(=914)
Measles virus. Rubella virus.

200. Rubella and measles antibodies in some Filipinos. Lourdes Espiritu-Campos, Flavia Caoili and Elena F. Almagro (Institute of Public Health, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, Jan.-March 1973, v.9, no.1, p.13-17. graph, tables. 6 refs.

Hemagglutination-inhibition test was done on 696 serum samples from residents (aged 1-40 yrs) in the Greater Manila area. Findings revealed that 587 had antibodies to measles and 472 had antibodies to rubella. The highest rates of reactors to measles and rubella were noted among the 11-15- and 26-30-yr age groups, respectively. 71.9% of the individuals had already rubella antibodies at the age of 6-10 yrs. No significant difference was observed between males and females. Results obtained among Mangyans in Oriental Mindoro showed that 50.8% had antibodies to rubella. These differences between Manilans and Mangyans may be attributed to environmental factors affecting chances of exposure.

616.927-085:616-053.2(=914)
Typhoid - Drug therapy.

201. Trends in the management and outcome of typhoid fever among Filipino children (1972). Isabel Remigio-Aure. *Philippine Journal of Pediatrics,* April 1973, v.22, no.2, p.74-81. graphs, tables. 11 refs.

Forty-six children of both sexes ranging in age from 4 to 15 yrs diagnosed clinically and serologically as typhoid fever cases were used in the study. Impressive symptoms observed were fever, jaundice, abdominal pain and distention. The management consisted of symptomatic treatment, supportive therapy with nourishing diets, intravenous fluids or blood transfusion as needed, Chloramphenicol at a dose of 50 mg/kg/day and in 10 patients who have clinical evidence of toxicity, steroid therapy at 2 mg/kg/day together with Chloramphenicol.

OPHTHALMOLOGY

617.713:616-002.4(=914)
Corneal ulcer.

202. The bacteriology and mycology of corneal ulcer. Salvador R. Salceda (Philippine Eye Research Institute, University of the Philippines, Manila). *Journal of the Philippine Medical Association,* March 1973, v.49, no.3, p.105-138. tables, illus. 100 refs.

The diagnoses and treatment of the bacterial and mycotic corneal ulcers among 80 Filipino patients (77 corneal ulcers and 3 abscesses), the factors that predispose the cornea to the infection, the causes of failures in the prevention, and methods for effective therapy of the infection and its sequelae are discussed.

GYNECOLOGY. OBSTETRICS

618.14:616-006-073
Hydatidiform mole - Diagnosis. Radiology.

203. Hysterogram in hydatidiform mole. Jesus Y. Alcid and Servando Arellano. *Journal of the Philippine Medical Association,* Feb. 1973, v.49, no.2, p.57-64. illus. 14 refs.

A total of 30 hysterographies were performed with clinical suspicion of hydatidiform mole. 26 cases turned out to be mole, of which 24 cases showed typical honeycombed pattern while 2 cases did not show the characteristic pattern. In the 24 cases, the dye in the uterus was rapidly excreted within 5 min with its evidence in the kidney. In one of the 2 cases with no characteristic pattern, the dye concentrated in one area only and remained even after 20 min; in the other case, the dye was not seen inside the uterus but in the kidney which indicated the unusual rapid excretion of the dye.

The best time to take a radiograph was found to be after one min. No side effects were observed attributable to the procedure, thereby, the use of hysterography by specialists and general practitioners is recommended for its accuracy, simplicity, safety and economy.

618.14:616-006.6(=914)
Cervix neoplasms - Occurrence.

204. Cancer of the uterine cervix among Filipino women. A ten year study at the UP-P.G.H. Medical Center. Luciano S. J. Sotto (UP-PGH Medical Center, Manila). *Journal of the Philippine Medical Association,* March 1973, v.49, no.3, p.139-156. graph, tables. 1 ref.

Clinical data on 723 patients, aged 21-83 yrs, are reported. High incidence of the disease was found among the 41-50 age group, low income group, those who married early before the age of 20 and among prostitutes. There was no correlation between incidence and parity. Abortion did not influence the development of cancer among the patients studied.

Some of the symptoms observed were abnormal vaginal bleeding or bloody vaginal discharge, whitish foul vaginal discharge, pains over the hypogastric area of back and urinary complaint in the form of dysuria. Radiotherapy and radical hysterectomy were found effective in treating cervical cancer, particularly in the early stage. Delay in diagnosis leads to moderately advanced or far-advanced lesions. Thus a continuous nationwide education of women to submit themselves to early and periodic examinations, a routine use of Papanicolaou smear and improvement of facilities will increase the survival rate of those suffering from cervical cancer.

618.14/.16
Gynecologic diseases - Pathology.

205. IUCD as a tool in discovering asymptomatic pathology of the lower generative tract of mothers in rural areas. Lorenzo F. Quimen. *Journal of the Philippine Medical Association,* May 1973, v.49, no.5, p.253-258. tables. 4 refs.

Presented are 100 IUDC patients with vaginal and cervical erosions, and infections associated with clinical manifestations, such as leukorrhea, vague pelvic pain, spotting after sexual contact, dyspareunia, pruritic vulva and urinary incontenence and dribbling. The types of pathologies and infections observed were cervical erosions, polyp, eversion and lacerations, cervicitis, vaginitis, urethro-cystorectocele while infecting agents discovered were *Trichomonas, Monilias, Gonococci* and pinworms.

Simple painting with 1:1000 Ziphiran and cautery as well as the proper and specific treatment of the infections controlled the clinical manifestations. The knee-chest position helped the urethrocystorectocele victims.

618.2:612.44
Pregnancy. Thyroid hormones.

206. Thyroid hormone economy in normal pregnancy. Thelma Linda Lamorena, Violeta Manansala, Pedro Cajipe and Flora M. Pascasio. *Acta Medica Philippina,* ser.2, April-June 1973, v.9, no.2, p.61-66. tables. 30 refs.

Studies conducted in 35 pregnant euthyroid nongoitrous women showed a significant increase in protein-bound iodine (PBI) by 1.66 μg/100 ml over the control value although the mean PBI value was within normal limits. No alteration in the dialyzable fraction or free thyroxine was noted. The absolute concentration of thyroxine was increased. Evaluation of the binding capacity of the carrier proteins in serum showed no change in thyroxine binding globulin but a significant increase in thyroxine binding pre-albumin compared to the control levels.

VETERINARY MEDICINE

619:616.981.42:636.2
619:616.981.42:636.293
Brucellosis - Veterinary.

207. A survey of the incidence of brucellosis among cattle and carabaos slaughtered at the National Abbattoir. Severino L. Gatapia, Antonio M. Castillo and Rhodora S. Carlos (Bureau of Animal Industry, Mandaluyong, Rizal). *Philippine Journal of Animal Industry,* First-Fourth Quarter 1970-1972(1973), v.29, nos.1-4, p.55-68. tables. 14 refs.

Based on 4309 blood samples tested with the aid of the serum plate agglutination and using Jen-Sal (US) and NIAH (Japan) antigen, results showed that the incidence of brucellosis in cattle and carabaos are 7.03% and 3.28%, respectively. The incidence in cattle was high among the 10-yr-old group while in carabaos among those over 10 yrs of age.

619:616.995:636.2 619:616.995:636.293
Cattle - Diseases and pests - Therapeutics.
Carabaos - Diseases and pests - Therapeutics.

208. Treatment of fascioliasis in cattle, Murrah buffaloes and carabaos. P. U. Dumag and D. J. Cabrera (Bureau of Animal Industry, Mandaluyong, Rizal). *Philippine Journal of Animal Industry,* First-Fourth Quarter 1970-1972(1973), v.29, nos.1-4, p.1-20. 1*ℓ*. plate, tables. 30 refs.

The relative efficiency of hexachlorophene, carbon tetrachloride, bithionol and hexachloroethane was tried in 89 cattle, 3 Murrah buffaloes and 23 carabaos with moderate to heavy *Fasciola gigantica* infection. A reduction in liver fluke ova count occurred in the animals of all treated groups but was highly significant only in the hexachlorophene-treated animals. The treated animals became voracious and greatly improved physically.

619:616.995-07:636.2
Cattle - Diseases and pests - Diagnosis.
Liver fluke disease.

209. A preliminary study on the use of transaminase tests (SGOT and SGPT) in the diagnosis of bovine fascioliasis. Jaime A. Sison, Guillerma M. Mendiola, Adelina M. Tajon and Adora Villadolid (Bureau of Animal Industry, Mandaluyong, Rizal). *Philippine Journal of Animal Industry,* First-Fourth Quarter 1970-1972(1973), v.29, nos. 1-4, p.99-103. 5 refs.

A total of 64 cattle blood samples (32 from animals positive for *Fasciola* spp. and 32 from *Fasciola* spp.-negative animals on fecal examination) were tested for liver dysfunction by the use of serum glutamic oxaloacetic transaminase (SGOT) and serum glutamic pyruvic transaminase (SGPT) tests. Results showed that liverfluke-infected cattle had a significantly higher SGOT activity (86.00 units/ml of serum) than those free from the destructive trematodes (26.78 units/ml of serum). SGOT is a liver function test of choice for hepatocellular necrosis due to fascioliasis in bovines. SGPT, however, appeared to be of no value in the diagnosis of bovine fascioliasis. No correlation between age, sex and breed and the transaminase activities of the liver-fluke-infected cattle was observed.

ENGINEERING

622.235
Mines and mining - Blasting.

210. **An-fo in hot ground breaking.** E. C. Oliva (Benguet Consolidated Inc., Baguio City). *Philippine Mining Record,* Jan. 1973, v.7, no.2, p.7-10, 12-21, 31-32.

Discussed are the 10 separate reports covering the entire research work of a blasting technique, Special An-fo and the final discovery of a procedure for charging it safely and economically in hot ground faces, namely: 1) temp. measurement in hot ground bore holes; 2) An-fo endurance test in hot ground bore holes with absence of a detonator; 3) thermal initiation of individual explosives; 4) thermal initiation of An-fo and in combination with other explosives; 5) firing An-fo with various types of primer at normal temp.; 6) investigation of static electricity hazards when blow loading An-fo; 7) reactivity of An-fo with pyrite-bearing ores; 8) blasting experiment with An-fo in actual hot ground development; 9) recommended procedures for drilling and charging hot ground development faces with An-fo; and 10) cost estimate of explosives used in hot ground development. The report also includes the investigation of the detonating temp. of sundry explosives used in hot ground blasting. The experiments and investigations conducted in the research do not guarantee favorable results and therefore no liability in connection with their use is assumed.

622.274.5 622.6
Mining methods. Mine haulage.

211. **Black mountain, Inc.-Panel Caving Slusher-Scraper and Conveyor-Belt System.** Sebastian C. Orduna, II (Black Mountain, Inc., Kennon Copper Mine Camp 6, Tuba, Benguet). *Philippine Mining Record,* March 1973, v.7, no.4, p.14-28. maps, tables, illus.

The technical and economical aspects of the Panel Caving Methods and Haulage System of the Kennon Copper Mine and the Mine development and ore draw procedures are described. The efficient, safe and economical system of ore handling by the Slusher-Scraper, Conveyor-Belt System is discussed. It is found more adaptable to Kennon Operations than the Branch-Raise Gravity plus Rail-Road System.

626.81
Irrigation - Mathematical model.

212. **Estimation of dry season runoff from rainfall for selected diversion irrigation system.** Maximo R. de Vera (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Feb.-March 1973, v.56, nos.9-10, p.340-352. tables.

Two multiple regression models are used to relate antecedent rainfall to dry season flow of 14 rivers serving diversion irrigation systems in the Philippines. The first model expresses runoff as a function of the bimonthly rainfall totals in cm from the preceding 8 mo. and the second model relies on the 2 bimonthly totals most highly correlated to flow and the number of rainy days with 25 mm or more rainfall from the preceding 6 mo. period. The models have little difference in their predictive accuracy. Although the standard error of estimate is relatively high, equations for half of the rivers studied could explain more than 60% of the variation in runoff, and for some rivers over 20% in the second model.

626.81/.85
Irrigation - Mathematical model.

213. **Irrigation capability of the Peñaranda River Irrigation System and the Sta. Cruz River Irrigation System.** A. L. Angeles and P. S. Ongkingco (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Feb.-March 1973, v.56, nos.9-10, p.390-395.

The prediction equations for the area that could be supplied with sufficient water (A) for a certain period within the year as a function of the diversion flow (Q), rainfall (R) and evaporation (E) were developed for the 2 systems studied. For the Peñaranda River Irrigation System, the prediction equation is $A = 7845+0.609Q+ 16961R-21607E$, while for the Sta. Cruz River Irrigation System, the equation is $A = 1551 + 0.559Q + 1375R - 3641E$. Thus, knowing the irrigation capability from the predicted equation, a water distribution and planting schedule can be drawn whereby the planting season for the different parts of the system will be scheduled and the area that will need water will not exceed the predicted area that could be supplied with sufficient water.

AGRICULTURE AND FORESTRY

631.362:621.928:633.18
Rice - Implements and machinery. Screens.

214. Determination of optimum design parameters of rotary screen cleaners using dimensional analysis. V. A. Uichanco and R. M. Lantin (College of Agricultural Engineering, UPLB, College, Laguna). *Philippine Agriculturist,* Feb.-March 1973, v.56, nos.9-10, p.291-308. graphs, tables. 10 refs.

Using the rotary screen principle, the effects of diameter of the screen drum, screen perforation size, length of exposed screen, angle of inclination of the drum, rotational speed of the drum and density of input material as parameters on output and purity for cleaning paddy, were studied. Results revealed that: 1) the maximum screen perforation size was limited by the average grain length of 9.52 mm (3/8 inch); 2) the optimum drum rotational speed was a function of input, density or paddy, and diameter of the drum with an optimum drum angle of 50; 3) the optimum length of exposed screen was 80 cm; and 4) the density of input of palay was more affected by the grain-straw-chaff mixture than by moisture content. Knowing the optimum values of the parameters as shown in the present experiments, output and purity of palay could be determined using the prediction equations developed.

631.563:633/635
Vegetables - Storage.

215. Storage of vegetables in controlled and modified atmospheres. N. D. Bondad (Philippine Council for Agricultural Research, Los Baños, Laguna). *Philippine Geographical Journal,* April-June 1973, v.17, no.2, p.49-63. graph, tables, illus. 72 refs.

Observations showed that controlled atmosphere (CA) storage extends storage life of some commodities longer than the modified atmosphere storage and also retards the lose of green color. In a study on "2029" tomatoes, polyethylene bags hastened ripening but extended the storage life of fruits by preventing excessive transpiration. A partial pressure of 127 mm Hg with an airflow of 200 ml/min delayed ripening without injurious effects when 12 gm $Ca(OH)_2$/kg fruit was added.

631.84:631.41
Nitrogen - Field experiments.

216. The effect of nitrogen fertilizer materials on the pH, the lime requirement of and the nitrate and ammonium ions concentration in Novaliches clay loam soil. Evita C. Rafanan and Billy T. Vicario (Araneta University Foundation, Malabon, Rizal). *Araneta Research Journal,* Jan.-March 1973, v.20, no.1, p.7-15. tables. 9 refs.

The experiment showed that the application of nitrogen fertilizer materials tends to lower the pH values and did not give any significant increase in lime requirement as compared to the control. A significant increase of ammonium ion was observed and nitrate nitrogen was found also to increase up to the 5th mo. after application of nitrogen fertilizer materials in Novaliches clay loam soil.

632.3.001.5:634.616
Soil and plant diseases.
Cadang-cadang.

217. Culture of indicator plants in soil from coconut groves affected by cadang-cadang. J. R. Velasco, C. S. Canoy and R. O. de Guzman (National Institute of Science & Technology, Manila). *Philippine Journal of Science,* June 1971(1973), v.100, no.2, p.83-93. plates, tables. 6 refs.

Based on the premise that cadang-cadang disease is associated with the soil, culture studies were conducted to compare the performance and characteristics of test plants grown in soils from the Bicol region and Laguna. Test plants were substituted in this study because the coconut is not only big and unwieldy, but it also reacts slowly.

Results seem to indicate that okra is a convenient indicator for the "dark green" response, while *Curcuma* is a convenient indicator for the rosetting and malformation. The very tentative indication with different fractions of the soil extract points to some element in the acid sulfide group as probably linked with cadang-cadang. This aspect of the study may be the subject of a subsequent report.

632.94:599.323:633.18
Rats - Extermination.

218. Comparison of three baiting methods for Philippine ricefield rats. F. Nelson Swink, G. Keith Lavoie, Gerry C. Atwell, Jesus P. Sumangil and Agapito M. Dela Paz. *Philippine Agriculturist,* Dec. 1972-Jan. 1973, v.56, nos.7-8, p.251-

257. table, illus. 4 refs.

The 3 methods of baiting ricefield rats (*Rattus rattus mindanensis*), tested on 240 ha. rice growing area in Central Luzon which reduced rat population are as follows: 1) standard baiting of 0.75 Zn_3P_2 on broken rice during the dry season; 2) a modified baiting of Zn_3P_2 and corn oil on whole rice during early booting of the rice crop; and 3) baiting of broken rice and Diphacinone, an anticoagulant, during late booting and early flowering. Rat damage to rice was negligible throughout the study on both treated and untreated areas, and did not correlate with trapping results, indicating the need for further work on the relationships between rat density and rice damage.

632.958:633.18
Zinc phosphide.
Rice - Diseases and pests - Therapy.

219. Weatherability of zinc phosphide treated rice baits. Richard R. West, William H. Robinson and Agapito M. Dela Paz. *Philippine Agriculturist,* Dec. 1972-Jan. 1973, v.56, nos.7-8, p.258-262. graph. 5 refs.

Four rice baits containing 2% Zn_3P_2, namely polished rice, polished rice coated with 1% coconut oil, binlid (broken rice) and binlid coated with 1% coconut oil, were exposed outdoors for 24, 48 or 72 hrs at about one in. of simulated rain/day or for 72 hrs without rain. Gas chromatographic analysis showed that all exposed baits lost considerable amounts of Zn_3P_2 in comparison with unexposed baits. After exposure without rain, baits without oil lost more (56-68%) than those baits with oil (15-38%). Polished rice without oil lost about 65% regardless of exposure. After one and 2 days of rain, rice with oil and binlid with or without oil lost 43-54%. However, limited bioassays suggested that, even after losses of 50-60%, 2% baits should retain enough Zn_3P_2 to kill most ricefield rats (*Rattus rattus mindanensis*).

633.1:631.562
Grain - Drying.

220. Refrigerated air drying of grain in storage. S. C. Andales (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Feb.-March 1973, v.56, nos.9-10, p.309-323. graphs, tables, illus. 19 refs.

The effectiveness and feasibility of the refrigeration system in conditioning the ambient air for drying grain was investigated. Results showed that the energy requirement of the refrigeration system in drying grain is comparable to the conventional heated air dryers. Air flow rates of 1, 2 and 3 cfm/ft^3 of grain did not show any significant effect on the milling yield and germination percentage. The drying air relative humidity of 16, 32, 43 and 52% indicated significant effect on the milling yield and germination percentage. Molding and heat damage did not occur at any part of the grain bulk in the course of drying.

Test results on milling yield, germination and energy requirement showed that the optimum combination of air flow rate and air condition was between one and 2 cfm/ft^3 of grain at 43% relative humidity and 82°F.

633.1:631.562:633.18.002.68
Grain - Drying. Rice hulls.

221. Factors affecting the efficient burning of rice hull for grain drying. U. A. Acasio, S. C. Andales and M. R. Valdez. *Philippine Agriculturist,* Feb.-March 1973, v.56, nos.9-10, p.324-339. graphs, tables, illus. 25 refs.

The effects of 4 levels of primary air (20, 35, 40, 45 CFM) and 3 levels of fuel rate (4.9, 6.5 and 9.55 lb/hr) on the efficient burning of rice hulls were studied. Results showed that the maintenance of a continuous burning process was affected more by the rate of feeding the rice hull into the combustion chamber than by the amount of primary air supplied. The best fuel feed was 9.55 lb/hr with a burning index of 0.87 indicating a high burning efficiency. Temp. fluctuation in the furnace was affected more by the rates of fuel feeding than by the levels of primary air used.

633.15:631.92:581.14
Growth - Mathematical models - Plants.
Corn, Effect of climate on.

222. A study on the effectiveness of four mathematical models on the development of sweet corn (H801) and the daily variations of solar radiation and air temperature. Emma P. Amores-Vergara. Los Baños, Laguna, Graduate School, University of the Philippines, 1973. 9ℓ. 169p. graphs, tables. 23 refs. (Thesis. Master of Science)

The effects of weather on crop development were assessed using 3 linear crop-weather models, namely the average span, the Reamus's degree-day equation and the Nuttonson's photothermal equation, and one non-linear triquadratic equation. Investigations showed that the triquadratic model was found to be the best mathematical expression for calculating the effects of the thermal and solar radiation environment on crop development among the models employed. From the triquadratic analysis of sweet corn, the crop's response to solar radiation and air temp. vary from one phenological period to another and that this behavior, inherent in the development stage, is obviously reflected from its coefficient whose values change with the life cycle of the plant.

633.17:631.361:641.7
Sorghum - Milling and cooking tests.

223. Milling, nutritive and sensory qualities of sorghum. L. U. Oñate, N. A. Lantican and R. M. Mayor (College of Agriculture, UPLB, College, Laguna). College, Laguna. College of Agriculture, University of the Philippines, 1973. 14p. tables. Mimeographed. (Paper presented at the ICPP 4th Annual Corn Conference, April 12, 1973, UPLB, College, Laguna)

Thirty five sorghum varieties were milled using a Satake Grain Testing mill with milling time ranging from 2 to 3 min. Darso, CS131, Cosor 2, 511-C and 506-B varieties had 2 min milling time and with milling recovery ranging from 21 to 81%. The pop sorghum varieties obtained the highest milling recovery percentage.

Generally, quantity and quality of protein of cereals is low with 11% only in sorghum due to deficiency in one or more essential amino acids and excesses in others. The protein deficiency can be improved by supplementation with amino acids or with protein rich foods that provide the limiting amino acids in the cereal protein.

Sorghum grains may be cooked by boiling, steaming or toasting. Recipes were developed and found acceptable by a panel of tasters.

633.18:631.36
Rice mills. Rice milling.

224. Performance characteristics of three types of laboratory rice mills. Amnaj Convanich and Dante B. de Padua (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist*, Feb.-March 1973, v.56, nos.9-10, p.359-373. graphs, illus. 4 refs.

The C4-63 variety used in the experiment was hulled by the McGill Sheller, Satake Husker and Olmia Huller and scoured by the McGill Miller Satake Pearler and Olmia Scourer. Results showed that the percentage of hulled grain in the 3 hullers increases as the clearance between the rollers used in hulling decreases. On the other hand, the head grain recovery of brown rice was observed to increase with the clearance. In all 3 scourers, the increase in length of milling duration caused a significant drop in the head grain recovery. The milling recovery dropped steadily as the milling duration was increased.

633.61:575.11 633.61:631.552
Sugar cane - Genetic research.
Sugar cane - Yield.

225. A preliminary report on Phil 5333 strains developed through irradiation. Ireneo L. Jimenez, Artemio M. Galvez and Maximo R. Pegenia. *Philippine Sugar Institute Quarterly*, April-June 1973, v.19, no.2, p.1-5. tables. 10 refs.

A profusely tillering mutant developed from a gamma-irradiated bud of Phil 5333 exhibited 3 strains (A-greenish yellow, B-reddish brown, C-reddish brown to purplish stripes) which manifested high yield potentials in cane and sugar. Various morphological characters of Phil 5333 were found modified by gamma-ray bombardments. Distinct agronomic features of the strains, such as number of tillers, growth measurement, number of millable stalks/stool, percent cane formation and refractometer index readings were eminently differentiated from those of the control. The control gave the highest percentage of crusher cane juice and average weight/stalk. Strain A equalled the control in average weight/stalk. The 3 strains excelled the control in brix, polarization, apparent purity and derived produceable sugar in piculs/ton of cane.

633.61:631.552:631.52
Sugar cane - Yield.
Sugar cane - Varieties.

226. Comparative yields of some sugarcane varieties harvested at different ages. A. M. Galvez, I. L. Jimenez, M. A. Tetangco and M. R. Pegenia. *Philippine Sugar Institute Quarterly*, April-June 1973, v.19, no.2, p.10-17. tables. 6 refs.

Experiments with Phil 5333, Phil 56226, Phil 58260, Phil 6112 and Phil 62120 showed highly significant differences in tonnage, rendements and sugar yields between the varieties and age of harvest. Phil 62120 registered higher significant cane yield than those of Phil 5333, Phil 56226 and Phil 58260. Its sugar yield was significantly higher than those of Phil 5333, Phil 56226 and Phil 58260. Based on indicated performance, Phil 5333, Phil 62120 and Phil 6112 should be harvested at 12-13 mo. while Phil 56226 and Phil 58260 at 11 mo.

634.0.2
Tree seedlings.
Growth regulators - Plants.

227. **The beneficial effect of agricol compound treatment in bare-root planting of five reforestation crop species.** Sergio Caneta Arias and Demetrio R. Mendoza (Araneta University Foundation, Malabon, Rizal). *Araneta Research Journal*, Jan.-March 1973, v.20, no.1, p.16-25. tables.

The study was conducted on seedlings of fire tree (*Delonix regia* Boj.), rain tree [*Samanea saman* (Jacq.) Merr.], baguilumbang (*Aleurites trisperma* Blanco), mahogany (*Swietenia macrophylla* King) and yemane (*Gmelina arborea* Roxb.). Results showed that agricol treated seedlings were more vigorous, healthier and had greater percentage of survival and normal leaves than the "mud-puddling"-treated and untreated ones.

634.0.2:582.47:631.531
Cryptomeria japonica.
Plant propagation.

228. **Propagation of Japanese cedar by cuttings from different parts of the crown.** Levi V. Florido and Vicente P. Veracion. Manila, Forest Research Division, Bureau of Forestry, Feb. 1973. 3p. 3 refs. (Research note no. 82)

The study was conducted at Baguio Forest Experiment Station, Pacdal (Baguio City). The cuttings (0.5 cm in dia. and 50 cm long) were gathered from a 7-yr-old tree planted to a depth of 13 cm without treatment in plots having soil covered with dark, porous layer exhibiting a pH value of 4.0-6.5. Results showed that cuttings taken from different parts of a crown did not yield a significant difference, indicating that crown location has nothing to do with the cuttings' survival.

634.0.2:582.545.2(914)
Rattan.

229. **Philippine rattans.** F. F. Ordinario (FORPRIDECOM, College, Laguna). College, Laguna, Forest Products Research & Industries Development Commission, Jan. 1973, 3p. table. 7 refs. (Technical note no. 125)

Rattans are usually found in thickets or second-growth forests. In the Philippines, only 10 species are commercially exploited, namely lambutan (*Calamus halconensis* Becc.), limuran (*C. ornatus* Becc.), lokuan (*C. reyesianus* Becc.), padlos (*C. microsphaerion* Becc.), palasan (*C. maximus* Merr.), panlis (*C. ramolusus* Becc.), sika (*C. spini-folius* Becc.), tagiktik (*C. filispadix* Becc.), tumalim (*C. mindorensis* Becc.) and ditaan (*Daemonorops mollis* Becc.). The silvics and silviculture processes of harvesting, scraping and seasoning, treatments, preparation of shipment and uses of rattans are briefly discussed.

634.0.31(914)
Lumbering.

230. **Logging in the Philippines.** Rogelio B. Baggayan. *Philippine Lumberman*, March 1973, v.19, no.3, p.6, 8, 10, 12, 19. illus. 10 refs.

Power logging systems associated with clearcutting methods are being practiced in the dipterocarp forests in the Philippines. However, when the desirable silvicultural treatment adapted is selection, these systems can be especially employed provided proper logging techniques be applied and the process supervised. In pine forest, seed-tree system is the most suitable silvicultural treatment. Under Philippine conditions, forest protection and management should be practiced in attaining sustained-yield and conserving the forest resources.

The silvicultural systems, such as selective logging and seed-tree methods and the logging systems, are briefly discussed.

634.0.8
Tristania decorticata.

231. **Technical information on malabayabas (Tristania decorticata Merr.). Family: Myrtaceae.** J. A. Meniado, F. R. Lopez and B. C. de Vela (FORPRIDECOM, College, Laguna). *Forpride Digest*, Jan.-March 1973, v.2, no.1, p.10-13, 35. tables.

The tree is medium-sized with an 80 cm dia. and an irregular bole of 8-12 m long. It is semi-gregarious and has pronounced buttress. It is distributed in Cagayan, Bataan, Quezon, Rizal, Camarines, Polillo, Davao and Surigao del Sur. The general characteristics, minute anatomy, uses, durability and preservation, and seasoning, working, mechanical and related properties of the wood are discussed.

634.0.8:582.825(914)
Wood - Identification.

232. **Guide to the identification of the woods of Philippine dipterocarpaceae.** Benigno A. Lomibao (FORPRIDECOM, College, Laguna). *Forpride Digest*, April-June 1973, v.2, no.2, p.26-34. 9 refs.

The Philippine dipterocarp species, divided into groups, are: palosapis, apitong, narig, Philippine mahogany, manggasinoro, guijo, manggachapui and yakal. On account of the variation of their general wood characteristics and properties, grouping is done according to texture, hardness, weight and color, uses, generic names and established trade names. Key to the identification of the groups based on gross features is discussed.

634.3:632.3:632.95 634.3:632.3:591.3
Citrus psyllas.

233. Biology and control of citrus psylla, Diaphorina citri Kuway, in the Philippines (Homoptera:Psyllidae). Dante R. Panaligan, Ciriaco S. Celino and Urbano V. Molino (Bureau of Plant Industry, Lipa City). *Animal Husbandry and Agricultural Journal,* Jan. 1973, v.8, no.1, p.20-21. 13 refs.

The life cycle studies of *Diaphorina citri* Kuway was conducted at Lipa Experiment Station (Lipa City). The egg, nymph from 1st to 5th instar and adult stages of the insect are briefly discussed. In certain stage of nymphal development, it is checked by internal parasites *Marietta javensis* and *Chartocerus muscidiformis,* which are visible at the 4th or 5th instar nymph. Chemical control measures recommended are those using Diazinon, Endrin, Meta-Systox R and Thiodan.

634.616:631.5 634.616:631.82
Coconut - Experiments, Field.
Fertilizers for coconut.

234. Experimental replanting of a cadang-cadang devastated area - a progress report. A. E. Bigornia, C. A. Calica and G. O. Pableo. *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1973, v.38, nos.3-4, p.11-18. graph, tables, illus. 1 ref.

An experimental and demonstration plot was established to determine the advisability of replanting a cadang-cadang devastated coconut plantation and the possible effects of adequate cultural management including fertilization. 3 fertilizer treatments produced significant differences in growth heights and in the number of leaves produced in 5 yrs of observation. Treatments, NPK and NK produced highest initial growths, followed by N and the control. Adequate cultural management promoted earlier flowering and/or bearing among replants by as much as 3-4 yrs. No correlation between treatments and cadang-cadang incidence was observed in the 5-yr period. Disease incidence was only 1%, occurring in the NK and NPK sub-plots. With the above results, replanting appears for the present to be the most potent measure against the coconut cadang-cadang disease.

634.616:632.693.23
Coconut - Diseases and pests.
Rodents - Control.

235. Notes on rodent pest affecting coconut. Melanda Mariano Hoque (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Dec. 1972-Jan. 1973, v.56, nos.7-8, p.280-289. tables, illus. 6 refs.

Of the 3199 damaged nuts collected in a 2-ha. coconut grove in Bay (Laguna) during the 50-wk period, 65% had injury at the base, 25% sustained lateral injury and 10% suffered distal injury. Sizewise, 46% are large, 30% medium and 24% small. Only *Rattus rattus mindanensis* Mearns was found in the study area. Trunk-banding proved to be an efficient and profitable method of controlling rat damage to coconut fruits.

634.774:631.5
Pineapples - Experiments, Field.

236. Effect of Ethephon on flowering, fruiting and slip production of smooth cayenne pineapple. N. D. Bondad (College of Agriculture, UPLB, College, Laguna). *Philippine Geographical Journal,* Jan.-March 1973, v.17, no.1, p.1-10. graph, tables, illus. 17 refs.

Ethephon [2-chloroethyl phosphonic acid], an ethylene-releasing compound, was found very effective in inducing early and uniform flowering of 'Smooth Cayenne' pineapple grown under coconut trees. 85% of the treated plants flowered 80 days after pouring 50 ml 1000 ppm Ethephon solution to the heart while all control plants remained vegetative. Also, Ethephon greatly reduced the number, weight and size of slips. No marked differences in the size of fruits between control and treated plants were observed.

635.25:631.5 635.25:631.82
Onions - Experiments, Field.
Fertilizers for onions.

237. The effect of fertilizer and different planting materials on the production of bulb and seed of Batanes, a native variety of onion. Lorenzo C. Duqueza and Teofilo S. Eugenio (Maligaya Rice Research and Training Center, Muñoz, Nueva Ecija). *Philippine Journal of Plant Industry,* Third-Fourth Quarter 1973, v.38, nos.3-

4, p.25-41. tables, illus. 7 refs.

The study conducted at the Maligaya Rice Research Center showed that as the rate of nitrogen was increased, there was a corresponding increase in the number of bublets and yield of dry bulbs, while a reverse trend was noted on the amount of seeds produced.

Directly planted bulbs gave a significantly higher yield of dry bulbs than plants grown from seeds. The difference in seed production among the various planting materials were not significant. However, transplanted bulb plants yielded more seeds compared to directly planted bulbs and plants grown from seeds. The percentage of germination of the seeds produced ranged from 70.12 to 72.96% in the fertilizer rates and 69.73-74.90% in the different planting materials. Also, the seeds bulbs, transplanted 21 days after planting and fertilized with 150 kg N and 50 kg each of P and K to hectare, gave the highest computed yield of dry bulbs with 26.875 kg to the hectare. For the production of seeds, the unfertilized plants grown from bulbs gave a computed yield of 110.68 kg of seeds/ha.

635.656:631.85
Phosphorus - Experiments, Field.
Cowpeas - Yield.

238. **Method of application of phosphorus to cowpea.** J. V. Bandoja and V. Iswaran (Dr. M. L. Roxas Memorial Experiment Station, Bureau of Plant Industry, Lipa City). *Science Review*, May-June 1973, v.14, no.3, p.14. table.

Experiments showed that foliar application of phosphorus is a very efficient method of increasing the productivity of cowpea at 80 kg P_2O_5/ha., half through soil at planting and half through foliar spray in 4 equal sprays.

ANIMAL HUSBANDRY AND PRODUCE

636.2.082.4
Cattle breeding - Crossbreeding.
Cattle - Performance records.

239. **A study on the 10-year reproductive efficiency of a herd bull (50% Santa Gertrudis x 50% Tharparkar) mated to Philippine native, grade and crossbred cows and the percentages of inbreeding, the phenotypic and genotypic composition of his progeny.** Santichai Chantaraboonta and Marciano D. Yanga (Araneta University Foundation, Malabon, Rizal). *Araneta Research Journal*, Jan.-March 1973, v.20, no.1, p.55-81. plate, tables.

Results showed that the bull had sired 105 calves in a 10-yr period with an average calf drop of 82.62% in 8 yrs. The average liveweight at calving of his offsprings ranged from 12.5-30 k, while body measurements of his mature female offsprings were 127.88 ± 5.43 cm with mean length of 119.5 ± 2.89 cm. The mean heart girth and body weight measurements were 152.04 ± 7.04 cm and 289.2 ± 16.95 k, respectively. Predominant colors of the offsprings were light brown, solid brown, dark brown and spotted. Latest genotypic characters were 1/4 Philippine Native (Batangas) x 3/8 Santa Gertrudis and Tharparkar, 1/8 Batangas x Holstein-Friesian x 3/8 Santa Gertrudis and Tharparkar. The inbreeding was 37.5%.

636.2.082.4
Cattle farm management.

240. **Cattle raising under coconuts.** Francisco A. Moog. *BAI Recorder*, April-June 1973, v.32, no.4, p.4-9. table. 16 refs.

Investigations on the possibility of integrating cattle raising with coconut production were conducted. Although there is danger in the reduction of coconut production under low level management, integration could increase the overall production/unit of land, by increasing the animal output for any drop in coconut production. Competitive effect of the pasture on the coconut could be eliminated by adjusting agronomic practices, such as cultivation and fertilization. Lack of available stock, lack of proper management and the farmers' attitude must be considered also in raising cattle in coconut farms.

636.2.085
Cattle - Feeding - Experiments.

241. **The effect of three concentrate mixtures and diethylstilbestrol implantation of feedlot performance of young bulls fed principally on rice straw.** S. S. Bumagat, C. B. Perez, Jr., F. B. Aglibut, A. G. Baquiran, C. C. Sevilla, O. M. Gatmaitan and N. M. Uichanco (College of Agriculture, UPLB, College, Laguna). *Animal Husbandry and Agricultural Journal*, Jan. 1973, v.8, no.1, p.6, 8, 10. tables. 11 refs.

A feeding trial of 3 concentrate mixtures of 11.23% crude protein with urea and diethylstilbestrol (DES) and without DES, 8.83% crude protein without urea and DES and with DES, and 10% crude protein with urea and without DES, was conducted on 18 bulls, aged 1 1/2-2 yrs, Native Batangas strain and Native x Santa Gertrudes grades. Results showed that the composition of concentrate mixture and DES implantation had no significant effect on the liveweight gains, feed conversion efficiency and feed intake of the bulls. However, there was a significant interaction between ration and DES treatment. Findings also revealed that the performance of bulls was not affected by protein levels from 8.8 to 11.3% and by urea supplementation. Likewise, DES implantation did not help in the utilization of urea.

On a 40:60 concentrate-rice straw ration, the feedlot bulls had an average daily gain and feed conversion efficiency of 0.57 and 14.2 kg feed/kg liveweight gain, respectively, during a 120-day feeding period.

636.2.089(914)
Helminths - Parasitic in livestock-Control.

242. **A survey of the incidence of gastro-intestinal helminths of cattle in the Philippines.** Pedro U. Dumag (Bureau of Animal Industry, Mandaluyong, Rizal). *Philippine Journal of Animal Industry*, First-Fourth Quarter 1970-1972(1973), v.29, nos.1-4, p.105-113. tables. 10 refs.

A total of 545 cattle of different breeds, age and sex from various ranches, stock farms and breeding stations were used in the study. Results showed that the most common parasitic helminth ova encountered in the order of their frequency were: *Cooperia* spp., 32.11%; *Haemonchus* spp., 27.89%; *Oesophagostomum* spp., 21.65%; *Trichostrongylus* spp., 16.88%; *Bunostomum phlebotomum*, 14.68%; *Mecistocirrus digitatus*, 10.64%; *Trichuris ovis*, 3.49%; *Strongyloides papillosus*, 1.77%; and *Neoascarus vitillorum*, 1.28%. Helminth parasites were found infecting the stomach and small and larger intestines. The degree of variation of parasitic infection could be attributed to farm management methods, the use of anthelmintics, the number of animals, and the nature and size of the pasture area. 3 major ways recommended for controlling parasitic infection are: 1) reduction of number of free-living stages of the parasites contaminating the pastures; 2) avoidance of infection of the host through contact with the infected pastures; and 3) regular anthelmintic treatment of the host which is the reservoir of contamination.

636.293:591.134(914)
Carabaos, Weight and measurements of.

243. **The correlation of body weight to certain body measurements in Philippine carabaos.** Virgilio C. Esguerra, Salvador P. Cajilog and Josefino A. Maon. *Animal Husbandry and Agricultural Journal*, Jan. 1973, v.8, no.1, p.25-28. tables. 13 refs.

The study conducted on 165 native carabaos at Urdaneta (Pangasinan) showed that the body length, height, heart girth and midriff were individually found to be highly correlated to the actual body weight in increasing order. All possible combinations of the 4 parameters considered showed high correlations - the more variables the greater the degree of correlation. The combination of height and midriff girth proved to be the best determinant of the weight of the animal if the use of 2 dimensions is desired, however any combination of these 2 measurements would also give a fairly reasonable estimate of the weight. From these correlations the volume or amount of medication and the approximate sales value of an animal can be determined.

636.293:637.5
Carabaos (meat).

244. **Suitability of carabeef for frankfurters and corned beef manufacture.** Cecilia Florencio and Divina G. Sonido (College of Home Economics, University of the Philippines, Quezon City). *Philippine Journal of Nutrition*, April-June 1973, v.26, no.2, p.144-146.

The chemical and physical properties of carabeef based on the emulsifying capacity, moisture content, pH and cooking stability were compared to that of beef. Carabeef and beef do not differ much in pH and moisture content neither in resiliency, firmness and binding capacity, indicating that carabeef is suitable in the manufacture of frankfurter.

636.293.088
Carabaos - Carcasses.

245. **Influence of sex, degree of finish and age on yields and cost characteristics of deboned carabeef.** N. M. Dagdagan and R. G. Marciano (Pure Foods Corp., Marikina, Rizal). *Philippine Journal of Nutrition*, April-June 1973, v.26, no.2, p.114-127. appendices, tables. 1 ref.

One hundred sixty-five carabaos weighing 278-576 kg were grouped into 3 sexes (steers, bulls and females), 2 degrees of finish (high and medium) and 2 age classes (5 yrs below and 5 yrs over). The slaughter and deboned data on yields were analyzed by the method of least squares. The effect of wider weight range was adjusted to the slaughter weight means. Results showed that the weights of dressed forequarters of steers were higher than those of females, but lower than those of bulls, the hindquarters were found heavier than those of the bulls and females and the boneless recovery were higher than both the bulls and females.

636.293.089 619:616.9:636.293
Carabaos - Diseases and pests.

246. **Important diseases and parasites of carabaos.** Felicisimo San Agustin. *Philippine Journal of Nutrition,* April-June 1973, v.26, no.2, p.68-78, 157.

Briefly discussed are some of the important infectious diseases and parasites that affect the Philippine carabaos, such as anthrax, blackleg, hemorrhagic septicemia, tetanus, foot- and mouth-disease, rinderpest, parasitic infestations, liver fluke disease, gastro-intestinal parasites, surra, sarcosporidiosis, brucellosis or contagious abortion and leptospira infection. The causes of the disease are classified into traumatism, chemical cause, faulty nutrition, organic poisons, internal and external parasites, infectious agents and genetic effects.

636.4.082.4
Swine, Effect of temperature on.

247. **Heat loss of pigs with corresponding air velocity.** M. M. Vergel, Jr. and T. E. Hazen. *Philippine Agriculturist,* Feb.-March 1973, v.56, nos.9-10, p.353-358. graph, table. 6 refs.

Pigs averaging 54, 104 and 153 lbs were exposed to air velocities of 140, 380 and 800 fpm at air temp. of 55°, 73° and 910°F. Based on the measured rise of air temp. and humidity in a closed chamber, a boundary-free air velocity of 400 fpm was estimated to be the least air movement rate that would effect the maximum change in sensible heat loss of pigs.

636.4.085
Swine - Feeding - Experiments.

248. **Slop feeding growing fattening hogs.** V. G. Argañosa and P. F. Alcantara. *Better Poultry and Livestock,* June 1973, v.14, no.10, p.13.

Results of the study using 20 Duroc weanling pigs showed that pigs under the wet feeding regimes grew faster and were more efficient than those which received dry feed. Pigs given the best feed to water ratio (1:3) gained 85 kg 44 days earlier, and were also 25% more efficient in feed conversion than those in dry feed.

636.4.088
Swine - Carcasses.

249. **Know the lean meat, fat and skin, and bone yields from the three regions of the pork loin.** V. G. Argañosa, A. B. Flores and F. C. Argañosa. *Better Poultry and Livestock,* March 1973, v.14, no.7, p.26-27.

The study was conducted on 12 crossbred barrows and 12 crossbred gilts with an average weight of 76 kg. Results showed that the loin end roast had the highest percent lean meat and the blade end, the highest percent bone. The gilts yielded significantly more percent lean meat and lower percent fat and skin than the barrows. Sex did not have any significant effect on the amount of bone yielded.

636.5.082.4
Blood - Coagulation - Poultry.
Poultry - Egg production.

250. **A study on the environmental effect of high temperature to blood clotting time and blood clotting time to egg production of breeding Single Comb White Leghorn layers with different distances of pubic bones.** Chumrus Pukdee and Marciano D. Yanga. *Araneta Research Journal,* Jan.-March 1973, v.20, no.1, p.26-54. tables. 12 refs.

The study conducted on 174 Single Comb White Leghorn layers, aged 1 yr and 2 mo., revealed the following results: 1) there is a significant negative correlation of 0.187 between egg production and blood clotting time; 2) blood clotting time was observed to decrease by 0.09 sec/egg increase in production; 3) a coefficient duction and the distance between pubic bones was insignificant; 4) a significantly negative co- significant; 4) a significantly negative coefficient of correlation of -0.247 was observed between blood clotting time and temp.; and 5) there is a corresponding decrease of 0.14°F in temp. for every increase of one sec in blood clotting time. Further studies on this line using heavy or meat-typed birds for comparative results are recommended.

636.5.083
Poultry - Care of chicks.

251. **The influence of docking on broiler production.** P. B. Agcanas, S. Saliba and A. A. Reyes (Bureau of Animal Industry. Manila). *Philippine Journal of Animal Industry,* First-Fourth Quarter 1970-1972(1973), v.29, nos.1-4, p.91-95. 3 refs.

Experiments were conducted on 450 one-day-old White Cornish chicks. Results showed that docking and removal of the tail feather of broiler chicks slightly increased body weight over the normal birds, however, the mean differences in the final average weight were insignificant. Docking on one-day-old broiler chicks did not cause any mortality, however, at one-wk-old the mortality was from 4 to 8 hrs after docking, or after an overweight in the brooders due to excessive bleeding from the treatment. The biweekly removal of the tail feather by pulling caused no untoward effect on the growth of the broiler chicks.

637.127.6:636.293
Milk - Phosphatase test. Milk, Buffaloes.

252. The alkaline phosphatase activity of carabao milk. Zenaida B. Joaquin and Violeta T. Gonzalez-Janolino. *Philippine Journal of Animal Industry,* First-Fourth Quarter 1970-1972(1973), v.29, nos.1-4, p.69-74. tables. 11 refs.

Results of the study using the dialysis phosphatase method showed that the phosphatase activity of raw carabao milk varies from 1166 to 10,119 μg phenol/ml with an average value of 4255 μg phenol/ml. Only 66% of the samples pasteurized at 145°F for 20 min passed the phosphatase test having phenol values of<1.0 μg phenol/ 5 ml of milk, ranging from 0.0015% to 0.058% of the alkaline phosphatase activity of the raw samples. It was also shown that the rate of inactivation of alkaline phosphatase in carabao milk is relatively faster than that of cow's milk although the initial concentrations of alkaline phosphatase in carabao milk samples were higher than those of cow's milk.

637.33
Cheese - Bacteriology.
Cheese - Ripening. Soybean cheese.

253. Chemical, physical and microbiological changes during the preparation and ripening of mold-ripened soybean cheese. Veronica M. Castro. Los Baños, Laguna, Graduate School, University of the Philippines, March 1971. 10ℓ. 83p. 5ℓ. graphs, tables, illus. 91 refs. (Thesis. M. S. in Food Science)

Cheeses were made from pure soybean milk (A), a mixture of soybean milk and refined cane sugar (B) and a mixture of soybean milk, carabao milk and refined cane sugar (C) utilizing *Streptococcus thermophilus* as starter organism. *Penicillium roguefonte* was inoculated into the curd for the ripening of the cheeses. The addition of cane sugar or the addition of both cane sugar and carabao milk increased the rate of acid development and bacterial growth during the cheese-making process. The pH of cheeses increased as ripening progressed. The titratable acidity of cheeses A and B increased, while cheese C decreased as ripening progressed. The addition of cane sugar and carabao milk to soybean milk improved the quality of cheese produced. The addition of cane sugar alone did not affect the acceptability of the product.

637.33
Cheese making.

254. The effect of some lactic acid cultures on the quality of DTRI-prepared white soft cheese. Teofilo A. Dulay. Los Baños, Laguna, Graduate School, University of the Philippines, May 1973. 12ℓ. 57p. tables. 27 refs. (Thesis. M. S. in Dairy Technology)

The study was conducted at the Dairy Training and Research Institute for a 6-mo. period. Lactic acid used either singly or in combination were *Streptococcus lactis, S. cremoris* and *S. diacetilactis.* Results showed that the use of these lactic acid cultures in the preparation of white cheese improved the texture, flavor and general acceptability of the product. Storage of the starter-type cheese at 10°C lengthens its keeping quality.

637.33:637.17
Cheese making - Cheddar cheese.

255. A study on the cheddar-type cheese utilizing caramilk. Narciso V. Villarta, Zenaida B. Joaquin and Eliseo S. Contreras (Bureau of Animal Industry, Manila). *Philippine Journal of Animal Industry,* First-Fourth Quarter 1970-1972 (1973), v.29, nos.1-4, p.75-89. tables. 9 refs.

Results showed that Czulak's "Cheedam process" proved to be a good method for the manufacture of cheddar-type cheese from caramilk. Problems previously encountered, such as bitter flavor and hardness of the curd have also been resolved by this process. The resistance of the curd or green cheese to lypolytic and proteolytic breakdown was observed to be significant. The use of vacreator in pasteurizing the caramilk is recommended to remove off odors and destroy the microbial flora of milk collected from different farms.

637.5:577.15
Meat - Tenderization. Papain.

256. Papain tenderization of porcine muscles. Lydia C. Nayga-Mercado. Los Baños, Laguna, Graduate School, University of the Philippines, 1971. 16ℓ. 62p. tables. 17 refs. [Thesis. M. S. in Animal Husbandry (Meat Processing)]

The effects of different levels of powdered papain on the tenderness of 4 porcine muscles cooked by dry and moist heat were investigated and evaluated. Results showed that the degree of tenderization increased with the increased level of tenderizer and was more pronounced in the inherently less tender muscles than in the inherently more tender ones when stewed to an interval meat temp. of 71°C. The incorporation of 1.00, 1.50 and 2.00% powdered papain in roasted and stewed pork produced significantly more tender meat than those with no papain treatment. On the basis of tenderness, flavor, amount of cooking loss (high meat yield) and minimum length of cooking time, roasting meat to 71°C using 0.25% papain gave the most promising results.

Roasting to 85°C slightly toughened the biceps femoris, the semi-tendinosus and the longissimus dorsi. Moist heat cooking rendered the tough cuts of meat just as palatable as dry heat cooking.

637.5:636.293
Carabaos (meat).

257. Evaluation of carabeef as a potential substitute for beef. F. C. Argañosa, P. C. Sanchez, P. I. Ibarra, A. L. Gerpacio, L. S. Castillo and V. G. Argañosa (College of Agriculture, UPLB, College, Laguna). *Philippine Journal of Nutrition,* April-June 1973, v.26, no.2, p.128-143. tables. 10 refs.

Results showed that carabeef had significantly higher protein, cholesterol, total pigment and myoglobin content but loser moisture content than beef. Percentage ether, ash and nitrogen-free extracts were essentially the same in beef and carabeef. At freezing temp. of -11.1° and -17°C, both carabeef and beef were not spoiled even after 3 mo. of storage. However, carabeef was observed to spoil earlier than beef. Although beef had significantly better flavor and higher general acceptability, the organoleptic ratings for carabeef were within acceptable scale.

637.523/.525
Meat products.

258. Making of ham, bacon and sausage at home. Faustino S. Mensalvas (Bureau of Animal Industry, Manila). *Philippine Journal of Home Economics,* July 1972-June 1973, v.23, nos.3-4 and v.24, nos.1-2, p.76-78, 66. illus.

Briefly discussed are the procedures for making the American and Chinese style ham, namely: chilling the carcass, trimming, application of the curing ingredients, refrigerating or keeping meat cold while in cure, smoking and/or drying, and aging. The proper ingredients and procedure for curing bacon and sausage (canton style and fresh native sausage) are also given.

637.53:636.293
Meat, Aging of. Meat - Tenderness.

259. Up-grading the quality of carabeef cuts by ageing and application of meat tenderizer. P. L. Madlansacay, T. R. Aducayan, C. O. Miranda, A. G. Galaraga and F. C. Pastor (Bureau of Animal Industry, Manila). *Animal Husbandry and Agricultural Journal,* April 1973, v.8, no.4, p.28, 30-32. tables. 9 refs.

Two heads of female carabaos of different ages and blood composition were slaughtered, halved and aged at 75°F for 21 hrs and 37°F for one wk, respectively. A liquid tendrizer composed of fresh pineapple juice, salt, spices and propylene glycol was injected into the muscles, soaked at 9 and 20% levels for 3 hrs. Statistical analysis of the data did not show significant differences between the treatments employed. However, a very desirable bloom and ease in cutting were observed on the carcasses aged at 37°F for one wk. The loin and round from carcasses stored at room temp. had higher acceptance scores than those under chilling temp. On the other hand, the application of liquid tenderizer gave significant improvements on the tenderness and acceptability of carabeef.

637.6:636.293
Meat products.

260. Preparation of kroepeck from gelatinous and tendinous by-products of carabao carcass. T. R. Aducayen, L. M. Marero, P. L. Madlansacay and F. S. Abalos (Bureau of Animal Industry, Manila). *Animal Husbandry and Agricultural Journal,* April 1973, v.8, no.4, p.15-18. tables. 8 refs.

The study made use of the different parts of carabeef carcass, namely snouts, feet, ligaments and tendons. Extraction records showed that snouts gave the highest gelatin yield, while tendons gave the most viscous extracts. Kroepeck made from feet was rated highest and those from tendons and ligaments, the least. The characteristics and desirable qualities of raw kroepeck did not vary after 2 mo. storage in sealed polyethylene bags at room temp. However, the crispiness of fried kroepeck packaged in polyethylene bags lasted for only 2 wks. Organoleptic tests showed that a combination of the extracts from the different parts of the carabeef carcass is very suitable in the preparation of gelatin kroepeck and can be economically transformed into highly nutritional products.

FISHERIES

639.2.03/.055
Catfish culture.

261. **Cultivation of catfish.** Thomas G. Reyes. *Fisheries Newsletter,* Jan.-March 1973, p.16-21. illus. 9 refs.

The rearing pond should be well-prepared and free from undesirable species of fish before stocking of the fingerlings begins. Water should be drained when the pond is rich with phytoplankton, to prevent mortality due to oxygen depletion. Fertilizer application of 500 kg/ha/6 mo. was found beneficial with daily supplemental feeds maintained at 2-3% (dry weight) of the total weight of fish stocked. For a more productive harvest, stocking density should be from 5 to 50 fishes/cu.m. of water.

The food habits, sexual differences, fecundity, sexual maturity, mating and spawning behaviors, diseases and parasites as well as the source of infections of diseased catfish and the preventive measures are briefly discussed.

639.31:597.553.12
Bangos culture.

262. **Bañgus culture in fish pen.** Sergio S. Felix. Manila, Bureau of Fisheries, May 1973. 2*l*. 23p. illus. Mimeographed.

Bañgus culture in fish pens made out of bamboo screens (banatan) and synthetic nets was tried in Laguna de Bay in 1971. Harvests from some of these fish pens showed very encouraging results. In March 1973, a one-ha.- bañgus fish pen yielded 5200 kg measuring from 27 to 33 cm long with a gross sale of ₱23,400.

Briefly discussed are the factors that must be considered in culturing bañgus in fish pens, namely: selection of sites, construction, transporting fingerlings, stocking, predators and competitors, feeding, management, and harvesting.

639.512:639.32(914)
Shrimps.

263. **Cultivation of "sugpo" (Jumbo tiger shrimp), Penaeus monodon Fabricius in the Philippines.** M. N. Delmendo and H. R. Rabanal (Philippine Fisheries Commission, Manila). *Philippine Journal of Fisheries,* July 1960-Dec. 1970(1973), v.8, no.2, p.159-175. table, illus. 2 refs.

The study undertaken at Dagat-dagatan Salt Water Fishery Experimental Station, Malabon (Rizal) for the periods of Sept. 1943-April 1944 and Sept. 1950-Aug. 1952 showed that "sugpo" held in pond for one yr measured 229.8 mm in body depth and weighed 95.1 g. The longest measure was 250 mm and weighed 120 g while others were as short as 180 mm with a weight of 50 g. A kg of one yr "sugpo" contains 8-20 pieces. The catching, sorting and distribution of the fry to fishpond centers are discussed.

639.512(914)
Shrimps.

264. **Prawn fisheries of the Philippines.** J. S. Domantay (Philippine Fisheries Commission, Manila). *Philippine Journal of Fisheries,* July 1960-Dec. 1970(1973), v.8, no.2, p.197-211. tables, illus. 14 refs.

Of the commercially important prawns in the Philippines, *Penaeus monodon* Fabricius is outstanding. Small species of *Palaemon* and *Palaemonetes* are known to occur in abundance often in big schools. 8 other species of *Penaeus* and 14 species of *Palaemon* are mentioned. The penaid shrimps are found practically all over the Philippine waters and the palaemonids are widely found inside coves and bays, and in mangrove swamps during high tide. The common methods of catching prawns, namely set impounding nets, mobile impounding nets, entangling nets and other fishing devices are discussed.

MARINE HUSBANDRY

639.64
Algae as food.

265. **Studies on the bleaching and utilization of the seaweed "gulaman-dagat" (Gracilaria confervoides).** J. I. Sulit, L. G. Salcedo and P. C. Panganiban (Philippine Fisheries Commission, Manila). *Philippine Journal of Fisheries,* July 1960-Dec. 1970(1973), v.8, no.2, p.177-182. ta-

bles. 5 refs.

A 1:50 dilution of NaOCl proved to be a good bleaching agent as shown by the gel strength of the agar extract prepared from the seaweed. The bleached seaweed when dried had a light green color. 0.10N H_2SO_4 was added in the extraction of agar, which compared well with the imported agar.

639.64(914)
Algae as food.

266. Some seaweeds consumed fresh in the Philippines. S. V. Bersamin, S. V. Laron, F. R. Gonzales and R. B. Banania (Philippine Fisheries Commission, Manila). *Philippine Journal of Fisheries,* July 1960-Dec. 1970(1973), v.8, no.2, p.183-189. table. 9 refs.

Twelve species of seaweeds which are commonly used as food are briefly described. The species belong to *Acanthopora, Caulerpa, Codium, Gracilaria, Hydroclathrus, Laurencia, Porphyra* and *Sargassum.* The seaweeds are used raw or blanched mostly as salad vegetable.

Food. Cookery

641.1:637.5:636.4
Pork - Cooking tests. Pork - Quality.

267. Comparative eating qualities of pork. E. C. Castro, F. C. Argañosa and V. G. Argañosa. *Better Poultry and Livestock,* April 1973, v.14, no.8, p.10, 12.

Preliminary trials were conducted to evaluate the eating qualities of pork from the Duroc and the Philippine native pigs. Results showed that the soup from the Duroc has better taste than that from the native pigs raised either in confinement or from a swine backyard. Moreover, roasted loin experiments showed that Duroc was higher in scores for color, flavor and acceptability than the native pigs.

641.6:597.553.12
Fish as food - Processing. Bangus.

268. Bangus deboning. Gloria G. Guevarra, Flor F. Abella and Hilda C. Ballo. *Fisheries Newsletter,* April-June 1973, p.6-11. illus. 11 refs.

A practical and easy method of deboning bangus (*Chanos chanos* Forskal) and an estimate of the cost and profits in producing the product as a small-scale industry are presented.

The anatomical structure of bangus is briefly discussed.

CHEMICAL AND ALLIED INDUSTRIES

66.061.4:547.466
Extraction processes. Mimosine.

269. Adsorption dialysis extraction of mimosine from ipil-ipil seeds. Florencio-Isagani S. Medina, III (Philippine Atomic Energy Commission, Quezon City). *Animal Husbandry and Agricultural Journal,* Jan. 1973, v.8, no.1, p.22-24. graph, table, illus. 10 refs.

Results showed a total extraction of 43.825 g of mimosine from 1.2 kg of milled ipil-ipil [*Leucaena leucocephala* (Lam.) De Wit]. The mean yield from 12 batches of 100 g of milled seeds was 3.464 ± 0.280 g mimosine ranging from 2.900 to 5.317 g.

663.1:663.81
Nata. Fermentation, Bacterial.

270. A study on the isolation and screening of microorganisms for production of diverse-textured nata. Emma Gallardo-de Jesus, Rolito M. Andres and Elvira T. Magno (National Institute of Science & Technology, Manila). *Philippine Journal of Science,* March 1971(1973), v.100, no.1, p.41-51. plates, tables. 6 refs.

Of the 33 nata-forming organisms isolated from rotting sugary fruits, vegetables and fermenting coconut water-vinegar, 14 were found promising. By the Cone Precision Penetrometer and organoleptic test, saba-1 and sineguelas isolates were found the best producers of soft-textured nata, guava and pineapple gave the highest yields of medium-textured nata with a mean average thickness of 87.66 and 80.7 cu.cm, respectively, after 15 days; latundan-2 was the best producer of tough-textured nata. The new strains isolated varied considerably in yield and textural quality of nata compared to the old latundan-2 isolate.

664.5(914)
Fish sauce.

271. Preliminary studies on the comparative chemical composition of the different commercial brands of "patis" in the Philippines. S. V. Bersamin and R. S. J. Napugan (Philippine Fisheries Commission, Manila). *Philippine Journal of Fisheries,* July 1960-Dec. 1970(1973), v.8, no.2, p.151-157. table. 4 refs.

Chemical analysis of 22 samples of fish sauce revealed that the special grade fish sauce contains 12% protein. The total solids content ranged from 28.56% to 37.81% and NaCl, 22.26-26.44%. Fish sauce with high total solids was found to have better keeping quality because of low moisture content. Most of the brands met the requirement for total N, NaCl and total solids contents set by the Philippine Standards Association, however, it was pointed out that the manufacture of fish sauce is without technological planning.

664.642
Yeast.

272. Studies on a high-lysine baker's yeast. Rodolfo Florentino (National Institute of Science & Technology, Manila). [Manila, 1973]. 4p. 6ℓ. graphs, tables, illus. 6 refs. Mimeographed. (Paper presented at the 2nd Asian Congress of Nutrition, Jan. 12-17, 1973, Manila)

Results showed that the total lysine content of high lysine-baker's yeast (HLBY) was about 3 times more than the baker's yeast (BY) and was found to be available from 90 to 93%. The rats given HLBY had higher growth rate than those given BY, The isonitrogeneous substitution of small quantity of HLBY to a wheat flour diet significantly increased growth and Protein Efficiency Ratio. In the rice diet, there was no significant difference in weight gain.

664.95:576.8
Fish as food - Bacteriology.

273. Trimethylamine and volatile reducing substances in frigate mackerel (Auxis thazard lacepede). Florian Magno-Orejana, Rogelio O. Juliano and Erlinda T. Banasihan (University of the Philippines, Quezon City). *Philippine Journal of Science,* Sept.-Dec. 1971(1973), v.100, nos.3-4, p.209-226. graphs, tables. 20 refs.

The volatile reducing substance (VRS) and trimethylamine (TMA) content in round and gutted fish samples at varying degrees of temp. and days of storage were determined quantitatively and correlated with organoleptic and bacteriological tests. The TMA and VRS values increased with increase in temp. of storage and with rising bacterial counts. Gutted samples exhibited higher values, including bacterial counts than the round samples, and that the head spoiled more easily than the tail and mid. The temp. of storage was found directly related to the formation of VRS and TMA in fish. Relatively lower TMA and VRS were obtained at lower temp. than at higher temp.

664:957:636.087
Feeds - Fish and fishery products.

274. Preparation of 'galongong' (Decapterus macrosoma) fish meal and its nutritive value. O. N. Gonzales, S. V. Bersamin and J. I. Sulit (Philippine Fisheries Commission, Manila). *Philippine Journal of Fisheries,* July 1960-Dec. 1970(1973), v.8, no.2, p.225-233. graph, tables. 10 refs.

The preparation of "galongong" (*Decapterus Macrosoma*) fish meal and fish liquor is briefly described. About 25% fish meal and 9.86% fish liquor were obtained. Proximate chemical analysis of the fish meal showed high protein content (74-75%) and slightly lower protein content for the fish liquor. It is recommended that at least 2% concentrated liquor be added to the fish meal to improve its nutritive value.

668.44:676.2
Resinous products - Paper uses.

275. Rosin size prepared from Benguet pine oleorosin. F. G. Abejo, J. O. Escolano and L. A. Ynalvez (FORPRIDECOM, College, Laguna). *Philippine Journal of Forestry,* First-Fourth Quarter 1966-1970(1973), v.22, nos.1-4, p.25-31.

Benguet pine oleorosin was studied for the production of paper size. Results showed that good quality paper sizes were produced from both the acid-treated and untreated Benguet pine oleorosin. The experimental sizes were found to be better than the imported commercial sizes tested as standard.

WOODWORK AND TIMBER INDUSTRY

674.03:620.174
Wood bending. Wood - Properties and uses.

276. Plasticizing yakal (Shorea astylosa Foxw.) with ammonium hydroxide. Exequiel U. Mendoza. *Forpride Digest,* Jan.-March 1973, v.2, no.1, p.14-17, 64-65. graph, tables. 6 refs.

Bending test of 120 specimens of yakal, 1/8 x 1 x 12" soaked for 1, 3, 5 and 7 hrs and overnight in NH_4OH solution indicated that the maximum improvement in bending could be attained by soaking the yakal strips within a 5-hr period. Some recommendations for the treatment of the yakal strips are given.

674.03.04
Lumber - Drying.

277. Accelerated kiln-drying schedule for red lauan (Shorea negrosensis Foxw.) and tangile [Shorea polysperma (Blco.) Merr.]. Toradio G. Cuaresma (FORPRIDECOM, College, Laguna). *Forpride Digest,* Jan.-March 1973, v.2, no.1, p.28-35. tables. 26 refs.

The 2 accelerated kiln-drying schedules formulated and tried for 4/4" red lauan and tangile were found effective in cutting drying time by 60-84 hrs which is attributed to the high dry-bulb temp. applied from the start of drying. Kiln-dried materials were of good quality and no evidence of objectional drying degrades was noted.

674.03.04
Wood - Chemical treatment.

278. Exploratory studies on the hot and cold bath treatment of White lauan (Pentacme contorta) with five pentachlorophenol in diesel oil. J. B. Seguerra, Jr. *Forpride Digest,* April-June 1973, v.2, no.2, p.35-41. tables. 7 refs.

The series of tests used were: 1) hot baths of 5, 10 and 15 min followed by 10 min cold bath; 2) hot baths of 1, 2 and 3 hrs followed by one hr cold bath; and 3) hot baths of 1, 2 and 3 hrs in water followed by one hr cold bath in pentachlorophenol. No significant differences in absorption were obtained among the 5, 10, and 15 min hot-baths and among the 1, 2 and 3 hr hot-bath treatments. Using water as the heating medium, followed by cooling in 5% pentachlorophenol, the treatment produced results comparable only with the 5, 10 and 15 min hot-baths. Results obtained in all series of tests conducted were found to be below the recommended standards. For practical and economical reasons, the 3 min dip-treatment is preferred to hot- and cold-bath treatments in the 5, 10 and 15 min baths. However, one hr hot-bath treatment is considered the best treatment in all series of tests.

674.03.04
Wood - Chemical treatment.
Lumber - Drying.

279. Study on the effect of some chemicals in controlling drying checks in refractory hardwoods and big-sized lumber. M. G. Laxamana and N. C. Generalla. *Forpride Digest,* Jan.-March 1973, v.2, no.1, p.18-27, 67. tables, illus. 6 refs.

Experiments were conducted on malakauayan (*Podocarpus philippinensis* Foxw.) using PEG-1000, raw cane sugar, urea, coconut oil, molasses, timber sealer and mobilcer. Results showed that PEG-1000 was the most effective chemical followed by sugar and urea in the reduction or complete elimination of surface checking. No appreciable checking was noted after machining and exposure to low climatic conditions.

674.243:620.17
Plywood.
Wood - Properties and uses.

280. The effect of pressing variables on bond strength and compression of plywood. Paciano M. Manzo (FORPRIDECOM, College, Laguna). *Forpride Digest,* April-June 1973, v.2, no.2, p.19-25. tables. 5 refs.

The study using almon (*Shorea almon* Foxw.), lauan (*S. negrosensis* Foxw.), manggasinoro (*S. philippinensis* Brandis), and mayapis [*S. squamata* (Turcz.) Dyer] revealed that pressing variables (pressure, temp. and pressing time), wood species and their combinations affected both the dry and the hot-and-cold soak shear strengths to varying degrees of significance, indicating that formation of glue bond is not only attributed to any single effect but to the combined effects of species and pressing variables. Compression was directly proportional to any of the pressing variables.

PULP AND PAPER INDUSTRIES

676.1.02.03 676.3
Paper manufacture.
Paper making materials.

281. Processing red lauan (Shorea negrosensis Foxw.) wood into book, bond and onionskin papers. Eduardo P. Villanueva, Cresencia H. Ballon, Jaime O. Escolano and Vicente B. Lasmarias (FORPRIDECOM, College, Laguna). *Philippine Lumberman,* May 1973, v.19, no.5, p.20, 22, 24. tables. 8 refs.

Studies showed that red lauan wood has good papermaking potentials. An average pulp yield of 47.2% was obtained using the conventional sulfate process. Its kraft pulp could be classified among the high-strength, moderate bleaching hardwood pulps. Purified in a 3-stage C-E-H sequence, bleached pulp yields, ranging from 92.8 to 98.2% were obtained. The quality of the experimental book, bond, airmail, onionskin and writing papers, produced from 100% red lauan bleached pulp, was comparable to the commercial products tested at FORPRIDECOM and also complied with the requirements of the US government Paper

Standard Specifications.

676.16.02
Pulp manufacture - Bleaching.
Manila hemp.

282. Bleached abaca-soda pulps. E. P. Villanueva, P. M. Nicolas, J. O. Escolano and J. R. Navarro (FORPRIDECOM, College, Laguna). *Philippine Journal of Forestry,* First-Fourth Quarter 1966-1970(1973), v.22, nos.1-4, p.13-23. graphs, tables. 14 refs.

Four bleaching processes, involving the single-stage hypochlorite principle, were applied on soda pulp of abaca (*Musa textilis* Nee). The pulp was bleached to about 73-74% G. E. at an elevated temp. of 40°C. The acidification of the pulp slurry with HCl shortened the bleaching time from 2 hrs to about 30 min. The use of acid in the single-stage hypochlorite bleaching of pulp at atmospheric conditions reduced the bleaching time and produced high yields of bleached pulp.

676.16.1.02
Wood pulp. Paper manufacture.

283. An evaluation of three-year old kaatoan bangkal (Anthocephalus chinensis Rich. ex Walp.) for printing and writing paper manufacture. E. P. Villanueva, J. O. Escolano and P. V. Bawagan (FORPRIDECOM, College, Laguna). *Philippine Journal of Forestry,* First-Fourth Quarter 1966-1970(1973), v.22, nos.1-4, p.33-44. tables. 11 refs.

Studies on the 3-yr-old kaatoan bangkal trees (*Anthocephalus chinensis* Rich, ex Walp.) were conducted at FORPRIDECOM. Based on the oven-dry weight of wood, the pulp yields obtained were 47.35% and 44.92% by the conventional sulfate and soda processes, respectively. Using a total chlorine charge, pulp responded satisfactorily to a 3-stage bleaching process of 6.6% for the kraft pulp and 6.22% for the soda pulp, Both types of bleached pulp were found suitable in the production of good-quality commercial grades of offset-book, bond, writing and onionskin papers.

676.18:634.772
Banana fiber pulp.
Paper making materials.

284. Paper pulp from banana fibers. *Animal Husbandry and Agricultural Journal,* March 1973, v.8, no.3, p.30.

Paper pulp was successfully extracted from the stalks of giant Cavendish bananas. Its physical properties, such as brightness, burst resistance, folding endurance and tensile strength surpassed the whole property range of the reference flax pulp and is camparable to the abaca pulp.

676.18:66.014
Fibers - Analysis.

285. The proximate chemical composition of agricultural fibrous materials and its significance. E. U. Escolano (FORPRIDECOM, College, Laguna). College, Laguna, Forest Products Research & Industries Development Commission, May 1973. 3p. tables. 6 refs. (Technical note no. 129)

Chemical compositions of abaca, *Agave* and *Furcraea* fibers, banana fibers, sugarcane bagasse, parts of coconut palm and Philippine hardwoods were analyzed. Of the fibrous materials studied, *Agave* and *Furcraea* fibers are the most promising raw materials for pulping and papermaking, because of its high holocellulose and alpha cellulose eontents and low lignin content. Abaca fibers had low lignin, ash, silica and extractive contents and high holocellulose, alpha-cellulose and pentosan contents, indicating that those fibers are potentially valuable for paper and dissolving pulps. On the other hand, banana fibers were found slightly inferior to abaca fibers, but much superior to hardwoods. The trunk of the coconut palm and sugarcane bagasse were found to be potential source of furfural due to their pentosan contents.

676.18:66.014
Fibers - Analysis.

286. Proximate chemical composition of some commercial grades of abaca (Musa textilis Nee) fibers. Eugenia U. Escolano, Purita C. Francia and Jose A. Semana (FORPRIDECOM, College, Laguna). *Philippine Journal of Science,* June 1971 (1973), v.100, no.2, p.107-114. table. 14 refs.

Seventeen commercial grades of abaca (*Musa textilis* Nee) fibers were analyzed. The high holocellulose, alpha-cellulose and pentosan contents, and low lignin, extractive and ash contents of the samples tested were found to be highly suitable for pulp and paper manufacture.

676.18.1.02
Pulp manufacture - Sulfate process.
Manila hemp.

287. **Short-cycle sulfate pulping of abaca chips and fibers at low alkalinity.** E. P. Villanueva, C. P. Estudillo, C. H. Ballon, R. V. Visporas and O. B. Tadena (FORPRIDECOM, College, Laguna). *Philippine Journal of Forestry,* First-Fourth Quarter 1966-1970(1973), v.22, nos.1-4, p.1-11. tables. 12 refs.

A 25-min-cycle sulfate process, using a relatively weak cooking-liquor alkalinity, applied in pulping abaca-sheath chips and fibers is briefly discussed. Pulp yields of abaca chips and fibers at low alkalinity were 45.5 and 66.78%, respectively, indicating that the physical and strength properties of pulp from abaca fibers are superior than those of dried abaca chips. The good bleachability and high strength properties of pulp from abaca fibers indicated the importance of processing abaca for the production of papermaking pulp.

676.44
Parchment.

288. **Parchment.** C. H. Ballon (FORPRIDECOM, College, Laguna). College, Laguna, Forest Products Research & Industries Development Commission, Feb. 1973. 2p. 5 refs. (Technical note no. 126)

The characteristics, uses and processes in the manufacture of the different types of parchment, such as vegetable, parchmentized kraft and abaca, are briefly discussed. The strength properties of abaca parchment were found to be comparable to samples of commercial US greaseproof paper.

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Animal Husbandry and Agricultural Journal

Araneta Research Journal

BAI Recorder

Better Poultry and Livestock

Bureau of Forestry Research Note

Chest Diseases

Filipino Family Physician

Fisheries Newsletter

Forest Products Research and Industries Development Commission Technical Note

Forpride Digest

Journal of the Philippine Medical Association

Philippine Agriculturist

Philippine Biota

Philippine Geographical Journal

Philippine Journal of Animal Industry

Philippine Journal of Fisheries

Philippine Journal of Forestry

Philippine Journal of Home Economics

Philippine Journal of Nutrition

Philippine Journal of Pediatrics

Philippine Journal of Plant Industry

Philippine Journal of Public Health

Philippine Journal of Science

Philippine Lumberman

Philippine Metals

Philippine Mining Record

Philippine Sugar Institute Quarterly

Science Review

B. OTHER PUBLICATIONS

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Arsenic — Analysis.

1. ARSENIC: A POTENTIAL WATER POLLUTION HAZARD. Susana Que. *Philippine Educational Forum,* Dec. 1973, p.32-41.

The toxic action of arsenic compounds in detergents as added pollutants has been hypothetically proven as highly detrimental. However, scientific opinion on this matter is not yet unanimous. An experiment using simultaneously the mercuric bromide stain and the silver diethyldithiocarbamate methods to detect arsenic in local detergents, such as Breeze, Drive, Jet, Marvel, Tide and Tops, was conducted. Results showed that arsenic is not present in local detergents, hence, they are safe for daily chores and also they do not contribute significantly to the pollution of our water system although arsenic was detected in some detergents manufactured in the United States. The silver diethyldithiocarbamate method was found to be a better technique for the analysis of arsenic because it can detect the presence of even minute amount of this element.

547.233
Aliphatic amines.

2. ELECTRONIC AND STRUCTURAL EFFECTS ON RATES AND EQUILIBRIA. V. NUCLEOPHILIC REACTIVITY OF SOME ALIPHATIC AMINES. Wendel Y. Lim, Bernadette I. Lazaro and Florence Manligas-Nacino. *Philippine Journal of Science,* Sept.-Dec. 1971 (1973), v.100, nos.3-4, p.261-265. table, illus. 16 refs.

Nucleophilicity of some aliphatic amines against 2,4-dinitrochlorobenzene as the reference electrophile was measured in dioxane at 450 nm and 30°C. The observed second order rate constants (k2, 10-4 liter/mole-sec) for the amines are: n-butylamine, 9.63; n-propylamine, 8.80; isobutylamine, 4.64; isopropylamine, 2.10; sec-butylamine, 1.54; and t-butylamine, 0.36. Results are interpreted in the light of current electronic and structural theories. — Authors' Summary

547.412.2:545.844
Paraffins. Chromatographic analysis.

3. CYCLOTETRACONTANE FROM CYANOTIS VAGA (LOUR.) SCHULTES. Concepcion A. Abela and Alfredo C. Santos (UST Graduate School, Manila). *Acta Manilana,* ser. A, June 1974, no.12(19), p.80-88. graphs, tables. 9 refs.

A macrocycloalkane, m.p. 82-84°, $C_{40}H_{80}$ (M+560), was isolated by column chromatography (silica gel, Merck) from an n-hexane extract of dried whole plants of *Cyanotis vaga* (Lour.) Schultes and was identified as cyclotetracontane on the basis of the spectral data. — Authors' Abstract

547.426.2:545.844
Glycerites. Chromatographic analysis.

4. PREPARATION OF TRILAURIN: CHROMATOGRAPHIC STUDY OF REESTERIFICATION OF METHYL LAURATE WITH GLYCEROL. Violeta P. Arida, Shirley L. Legaspi, Sixta A. Insua and Remedios G. Ferrer (National Institute of Science & Technology, Manila). *Philippine Journal of Science,* March-June 1973 (1974), v.102, nos.1-2, p.45-54. graphs, tables. 17 refs.

A simple, direct and fairly rapid method for the separation and determination of trilaurin in a reesterification mixture of methyl laurate and glycerol was developed using chromatographic techniques.

With the aid of this analytical method, a study of the various reaction parameters was undertaken and the conditions most favorable for trilaurin formation were established. Under these conditions, the average yield of trilaurin was 73.5% with a standard deviation of ± 0.73%. — Authors' Summary

547.458.82 661.728.8
Pyroxylen.

5. CELLULOSE NITRATE. **College, Laguna, Forest Products Research & Industries Development Commission, Oct. 1973. 2p. 6 refs. (Technical note no. 134)**

The stages in the commercial preparation of cellulose nitrate consist of shredding and drying the cellulose, nitration of the pulp material with mixed acid, removal of the spent acid by centrifugation, stabilization by boiling and treatment with hard water or weak organic bases, viscosity control and water removal by displacement with ethanol. Cellulose nitrate is classified into the "soluble" and the "smokeless" types. It is used in the manufacture of explosives, celluloid, nitrocellulose plastics and lacquers.

547.458.87
Hemicelluloses.

6. HEMICELLULOSES. P. C. Francia (FORPRIDECOM, College, Laguna). College, Laguna, Forest Products Research & Industries Development Commission, Aug. 1973. 3p. illus. 6 refs. (Technical note no. 132)

Hemicelluloses refer to a complex mixture of low molecular weight polysaccharide polymers which are closely associated in plant tissues with cellulose, and are largely amorphous. They are generally found in the middle lamella, primary wall and throughout the bulk of the wood fiber.

In the preparation of dissolving pulp suitable for the manufacture of viscose products, it is important to remove the hemicelluloses and other impurities to produce pulp with high alpha-cellulose. This is partly done by the prehydrolysis stage prior to the actual pulping. The viscosity and filterability of the finished viscose are influenced by the amount of hemicellulose content. Hemicelluloses influence water retention, swelling and plastilization of fibers by water, making mechanical preparation easier, besides promoting improved fiber-fiber contact, bonding and the tensile and burst strengths of the paper. Tearing strength, in the other hand, generally decreases with an increase in the hemicellulose content. A high degree of bonding produces papers that are hard and brittle in structure and of low opacity and absorbency. The inner structural divergencies of the hemicelluloses in wood give the characteristic features which reveal the differences in pulping quality and may have also relevance to the application of suitable methods of pulping to attain the desired pulp properties.

547.466
Amino acids.

7. ELECTRONIC AND STRUCTURAL EFFECTS ON RATES AND EQUILIBRIA. VII. NUCLEOPHILICITY OF SOME ALIPHATIC AMINO ACIDS. Leticia C. Ver (University of the Philippines, Quezon City) and Wendel Y. Lim (Philippine Refining Co., Manila). *Philippine Journal of Science,* March-June 1972 (1974), v.101, nos.1-2, p.39-48. graphs, illus. 13 refs.

Nucleophilic reactivity of some aliphatic amino acids was determined at 490 nm and at 40°C in dioxane-water. Dinitrofluorobenzene was used as the reference electrophile. The second order rate constants (Kobs, 10-4 1/mole-sec) by method of least squares are glycine, 5.64, leucine, 3 66, isoleucine, 2.19; valine, 2.17; and alanine, 1.54. Results are explained in the light of current electronic and structural concepts. — Authors' Abstract

547.571:545.33
Benzaldehyde. Polarographic analysis.

8. ELECTRONIC AND STRUCTURAL EFFECTS ON RATES AND EQUILIBRIA. VI. POLAROGRAPHIC REDUCTION OF SUBSTITUTED BENZALDEHYDES. Josefina Dolores T. Torrado (University of the Philippines, Quezon City) and Wendel Y. Lim (Philip-

pine Refining Co., Manila). *Philippine Journal of Science,* March-June 1973(1974), v.102, nos. 1-2, p.81-97. graphs, tables, illus. 16 refs.

Polarographic half-wave potentials, E1/2, of 14 different benzaldehydes were measured under identical conditions. A linear free energy correlation of this polarographic reduction showed that σ n correlates better than σ as the set of substituent constants and that ortho-effect operates in the 2-substituted benzaldehydes. Results are explained in the light of modern electronic and structural concepts. — Authors' Abstract

547.92:582.26
Sterols — Analysis.

9. STEROLS FROM SARGASSUM POLYCERATIUM MONTAGNE AND S. CONFUSUM AGARDH. Patrocinio Sevilla-Santos, Gertrudes Aguilar-Santos, Imelda A. Sy and Felisa A. Castro. *Philippine Journal of Science,* Sept.-Dec. 1971(1973), v.100, nos.3-4, p.201-207. graphs, tables. 19 refs.

Sterols were isolated from the nonsaponifiable portion of the lipids of *Sargassum polyceratium* and *S. confusum* by fractional crystallization. The infrared and mass spectra of both algal-sterols resembled those of fucosterol which is the typical sterol of brown algae. — Authors' Summary.

547.94:582.972
Alkaloids — Isolation & purification.

10. THREE ISOMERIC ALKALOIDS FROM UNCARIA PERROTTETII (A. RICH.) MERR. (UNCARIA FERREA F. VILL NON D.C.). Glory C. Lleander, Celia L. Herrera and Nelly Balgos. *Philippine Journal of Science,* June 1974, v.103, no.2, p.75-80. tables, illus.

Three isomeric alkaloids were isolated from *Uncaria perrottetii* (A. Rich.) Merr., a dicotyledon of the family Rubiacea. Based on spectroscopic data and comparison with authentic samples, 2 of the 3 isolated alkaloids were identified as pteropodine and isopteropodine. Isolation and characterization of the 3 isomeric alkaloids are discussed in detail.

HYDROLOGY

551.495:528.9
Water, Underground.

11. GROUNDWATER TABLE MAPPING FOR SHALLOW-DUG WELL. Renato S. Gamboa, Rodolfo C. Undan and Catalino R. dela Cruz. *CLSU Scientific Journal,* Jan.-June 1973, v.9, no.1, p.11-30. graphs, maps, tables. 10 refs.

Twenty-two wells in the University Reservation, Central Luzon State University (Nueva Ecija) with depths ranging from 3.0 to 10.0 m were used in the study. These consisted of 15 wells cased with 1 m dia. perforated concrete casing, one 0.5 m dia. corrugated concrete casing, one 0.5 m dia. corrugated steel casing and six 3-in. dia. perforated GI pipings. Results showed that the average maximum and minimum elevations were 73.79 and 70.79 m above mean sea level, while the average maximum and minimum depths of water table were 0.56 and 3.38 m, respectively. Generally, the direction of groundwater flow was from northeast to southeast of the University reservation.

BIOLOGICAL SCIENCES

571.2(914)
Tools. Excavations (archeology).

12. A NEWLY DISCOVERED BLADE TOOL INDUSTRY FROM THE CENTRAL PHILIPPINES. D. J. Scheans, K. L. Hutterer and R. L. Cherry. *Leyte-Samar Studies,* 1973, v.7, no.1, p.8-14. plates. 4 refs.

The survey and excavations in the Catbalogan area led to the discovery of Buadian industry, a lithic industry characterized by microblade tools. Majority of the tools were surface recoveries since the excavations were of a preliminary nature to explore archaeological possibilities of the area. Descriptions of the tools are presented.

572.512
Anthropometry.

13. WEIGHT, HEIGHT AND ARM SKIN-

FOLD MEASUREMENTS OF HIGH SCHOOL STUDENTS IN METROPOLITAN MANILA. Rudy H. Tan, Ma. Patrocinio E. de Guzman, Alicia L. Lingao, Tita B. del Rosario and Felices C. Cuaderno. *Philippine Journal of Nutrition,* Jan.-March 1974, v.27, no.1, p.27-33. graphs, tables. 6 refs.

Using standard techniques of measurements and recording, anthropometric data were obtained from representative samples of public high school students. Results showed that girls were heavier than boys up to 14 yrs; however, boys gained weight faster from age 14 to 18 yrs. Also, girls were significantly taller than boys before the age 13½ yrs; however, boys grew taller from 13½ to 16 yrs. Arm skinfold of girls were significantly thicker than the boys of the same age. High school students in Metropolitan Manila were above the national average in weight up to 18 yrs for males and up to 14 yrs for females.

576.8.093.3
Culture media. Xanthomonas oryzae.

14. A COMPARATIVE STUDY OF CULTURE MEDIA FOR XANTHOMONAS ORYZAE.

Asuncion Karganilla (College of Agriculture, UPLB, College, Laguna), Marina Paris-Natural and S. H. Ou (International Rice Research Institute, Los Baños, Laguna). *Philippine Agriculturist,* Aug.-Sept. 1973, v.57, nos. 3-4, p.141-152. tables, illus. 11 refs.

Wakimoto medium, the most common medium for culturing *Xanthomonas oryzae* (Uyeda et Ishiyama) Dowson, was improved by the elimination of potato and by the addition of 0.05% $FeSO_4$. The performance of the resulting medium (WF-P) as a culture medium for *X. oryzae* was compared to Wakimoto, Silva-Buddenhagen (SB), Goto, Suwa, Tanaka, Watanabe, NIAS and Kado media. As agar media, only WF-P, SB, Goto and Suwa media supported colony formation from a bacterial suspension of 100-300 cells/ml with WF-P followed by SB medium giving the highest colony count. As liquid media, only WF-P and SB supported good growth of *X. oryzae* at an initial population level of 100-300 cells/ml. WF-P is the best medium for quantitative assay but SB or MSB serves better as a recognition medium to differentiate *X. oryzae* from *X. translucens* and other bacteria. MSB is a modification of SB medium which gave a 10% higher colony recovery than the original SB medium.

Two isolates were found to differ in reaction to 2 concentrations of Na_2HPO_4 in Wakimoto medium. The inhibitory effect of Na_2HPO_4 is overcome by the presence of $FeSO_4$ in WF-P medium. — Authors' Abstract

576.8.094/.095:635.66:664:8
Microorganisms, Effect of temperature on.

15. GROWTH CHARACTERISTICS AND THERMAL RESISTANCE OF SPOILAGE ORGANISMS ISOLATED FROM CANNED PEACHY PAPAYA GIVEN MINIMAL HEAT TREATMENT.

Emernelita I. Peralta, Estrella F. Alabastro, Gilda R. A. Legaspi and Katherine M. Apolinario (National Institute of Science & Technology, Manila). *Philippine Journal of Science,* March-June 1973 (1974), v.102, nos.1-2, p.69-80. graph, tables. 14 refs.

The morphological and physiological characteristics of the spoilage microorganisms isolated from canned peachy papaya given minimal heat treatment were studied. Of the 3 isolates obtained, 2 were Gram-positive rods, nonsporeforming, motile and catalase-negative. These isolates did not liquefy gelatin and were microaerophilic with respect to oxygen requirement. On prolonged incubation (2 wks) at 37°C, both were able to develop cream pigment in orange serum agar. These 2 isolates differed only in their ability to ferment arabinose. The 3rd isolate was gram-positive, motile coccus, which was nonsporeforming, microaerophilic, did not liquefy gelatin and reacted positively towards the catalase test.

A representative result of the thermal resistance studies for one of the isolates is presented. It was generally observed that the D values of this isolate in phosphate buffer were higher than in peachy papaya.—Anthors' Abstract

576.8.097
Aflatoxins.

16. AFLATOXIN PRODUCTION OF ASPERGILLUS FLAVUS ISOLATES FROM ROUGH RICE, CORN, SOYBEAN, PEANUT AND COPRA. Ida M. Fandialan and Lina L. Ilag (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Oct.-Nov. 1973, v.57, nos.5-6, p.254-263. tables. 21 refs.

A comparison of the aflatoxin contents of the fungal growth and of the potato dextrose broth filtrate, in which the isolates were grown for 8 days at 28°C, revealed that the mycelium with spores contained more aflatoxin than the broth filtrate. Cross inoculation studies showed that each isolate grew equally well in its native substrate and in the other 4 substrates. Aflatoxin production, however, varied with each particular inoculum-substrate combination. Rice appeared to be the best substrate for aflatoxin formation. Soybean supported good fungal growth but yielded from nil to minute amounts of aflatoxin.

When inoculated in their respective native substrates, the most favorable temp. for aflatoxin production by the isolates from rough rice and corn was 30°C; the peanut and copra isolates, 25°C, and soybean isolates, 20°C. — Authors' Abstract

576.9.097
Mycotoxins.

17. THE MYCOTOXIN MYSTIQUE. Lina L. Ilag (College of Agriculture, UPLB, College, Laguna). *Proceedings of the Eight Annual Convention of the Philippine Association of Food Technologists,* Nov.27-28, 1973, p.28-34.

Mycotoxins are poisonous metabolic elaborated by fungi or molds during growth, wherein the toxin-forming fungi belong to *Aspergillus, Penicillium* and *Fusarium.* The disease caused by the ingestion of mycotoxin-contaminated substances is called mycotoxicosis and mycosis if there is a general invasion of the living tissues by an actively growing fungus. There are more than 200 mycotoxins that can cause mycotoxicosis in animals, few of which however, are toxic to human.

A brief history of mycotoxicosis and control of mycotoxins are discussed. An integrated multidisciplinary approach in the study of mycotoxin is suggested.

BOTANY

581.192:635.976:631.571
Plants — Chemical composition. Anonaceae.

18. A PRELIMINARY REPORT ON THE CONSTITUENTS OF UVARIA SCANDENS, C. B. ROB, (ANONACEAE). Beatrice Q. Guevara and Alfredo C. Santos (UST Research Center, Manila). *Acta Manilana,* ser. A, July 1973, no.10(17), p.12-28. graphs, tables, illus. 15 refs.

A pentacyclic triterpine was isolated from the stem bark of *Uvaria scandens* by chromatographic methods and was identified as taraxerol, $C_{30}H_{50}O$, with a molecular weight of 426.3849. The crystals gave a melting point of 282°-283°C, an Rf value of 0.53 in benzene: ethyl acetate (3:1), and a rough yield of 0.12% of the hexane concentrate.

581.6
Botany, Economic.

19. THE ETHNOBOTANY OF THE TASADAY: THE USEFUL PLANTS. D. E. Yen and Hermes G. Gutierrez. *Philippine Journal of Science,* June 1974, v.103, no.2, p.97-139. plates, tables, illus.

A general account of the Tasaday environment, with emphasis on the flora, is followed by an enumeration of the useful plants. The arrangement of the main data is based on the categories of uses for which plants are exploited — food, food acquisition, cordage, body adornment and care, stimulants, firewood, building materials and nonsubsistence uses, with suitable subdivisions. A list of the plant collection that was made in 1972, including the useful plants, forms an appendix to the paper. — Authors' Summary

582.26:541.182
Algae. Colloids.

20. STUDIES ON THE CARRAGEENAN CONTENT OF VARIOUS SPECIES OF EUCHEUMA AND OTHER ALLIED GENERA. Clarita A. de Leon (UST Research Center, Manila). *Acta Manilana*, ser. A, June 1974, no.12 (19), p.30-47. graphs, illus. 5 refs.

Eight species collected from 5 genera were used in the study, namely: 1) *Eucheuma cottonii* (var. *erecta*) Web. van Bosse; 2) *E. muricatum* (Gmelin) Web. van Bosse; 3) *E. serra* J. Agardh; 4) *E. striatum* Schmitz; 5) *Gelidiella acerosa* (Forsskal) Feldman Hanel; 6) *Gloiopeltis tenax* (Turner) J. Agardh; 7) *Gracilaria salicornia* C. Agardh; and 8) *Laurencia papillosa* (Forsskal) Greville. The *Eucheuma* species yielded carrageenan while those of the *Laurencia* and *Gloiopeltis* produced carrageenan-like colloids but the *Gracilaria* and *Gelidiella* gave agar. Older plants gave lesser yield. The March-May Rhodophyte harvest produced the most phytocolloid, followed by the Oct-Dec. harvest. Purification of carrageenan by dialysis resulted to a very light tan free-flowing powder. The conversion of the carrageenan and its by-products into forms convenient for medicinal and industrial uses, the classification and identification of these tropical species and some factors related to its yield, processing and formulation are presented.

582.272/.273(914)
Algae.

21. ALGINIC ACID, AGAR AND CARRAGEENAN CONTENTS OF SOME PHILIPPINE MARINE ALGAE. Pilar G. Anglo, Luz Baens-Arcega, Angelina L. Arguelles and Nerissa Sarabia (National Institute of Science & Technology, Manila). *Philippine Journal of Science*, March-June 1973 (1974), v.102, nos.1-2, p.55-67. plates, tables. 26 refs.

Samples of the brown (Phaeophyta) and red (Rhodophyta) algae collected from exposed and protected marine waters were analyzed for industrial extractives — alginic acid, agar and carrageenan. Results showed that *Turbinaria ornata* J. Agardh gave the highest yield (46.76%) for alginic acid content, while *Hydroclathrus* gave the lowest yield (7.10%). Of the species analyzed for agar, *Gracilaria eucheumoides* Harvey gave the highest yield of 58.15%, while *Eucheuma* sp. gave the lowest yield of 34.20%. *Asparagopsis* sp. gave the lowest yield of carrageenan (1.97%), and *Eucheuma* sp. contained 54.25% carrageenan.

These extractives can be used as emulsifiers, gelling and surfacing agents, stabilizers in food industries, pharmaceuticals and other industrial processes.

582.273(914)
Algae.

22. ON THE MARINE ALGAE OF BILIRAN (LEYTE) AND VICINITIES, CENTRAL PHILIPPINES. Paciente A. Cordero, Jr. (National Museum, Manila). *Leyte-Samar Studies*, 1973, v.7, no.1, p.15-37. 63 refs.

Thirty-three genera belonging to 19 families of marine algae are described. *Actinotrichia fragilis* (Forsskal) Boergesen, a bushy red algae under Family Chaetangiaceae which is abundant in the Pacific, is reported for the first time in the Philippines. Also reported is a species of *Gelidium*, a highly prized seaweed by the inhabitants of Biliran Island as the principal source of a gelatin dessert

582.28:542.92:547.458.8
Molds, Cellulose-decomposing.

23. A STUDY ON THE ISOLATION AND SCREENING OF CELLULOSE-DECOMPOSING MOLDS AS SOLUBILIZERS OF FIBROUS MATERIALS. Leticia Maceda-Coronel (National Institute of Science & Technology, Manila). *Philippine Journal of Science*, Sept.-Dec. 1971 (1973), v.100, nos.3-4, p.163-175. plates. tables. 10 refs.

Forty-two mold isolates from animal manure, garden soil and decayed fruits and vegetables were screened for cellulose-decomposing efficiency on strips of filter paper placed over basic salts agar in 4-14 days. 13 isolates were found capable of decolorizing filter paper discs impregnated with 0.2-1.0% solutions of $MgSO_4$ and $KMnO_4$. Based on tensile strength tests of inoculated cotton strings in the presence of basic salts, 6 isolates showed decomposing efficiencies of 83-97% in 4 days and 100% in 8 days. The rest exhibited 40-100% degradation after 12-16 days. However, all isolates produced liquefaction of the cellulosic material when grown on bacterial membrane of *A. xylinum*. The weight loss of filter paper and coconut flour substrates inoculated with the cellulolytic isolates and aerated in the presence of basic salts solution after 16 days ranged from 10 to 84%.

582.33(914)
Liverworts.

24. NEW AND NOTEWORTHY PHILIPPINE LIVERWORTS. II. R. M. del Rosario (National Museum, Manila). *Philippine Journal of Science*, Sept.-Dec. 1971(1973), v.100, nos.3-4, p.227-242. illus. 18 refs.

Eleven species of primitive leafy liverworts are described. The 3 new species are *Herberta milleriana, Telaranea panchoi* and *T. octoloba*. New records for the Philippines are *Acromastigum denticulatum* and *Microlepidozia gonyotricha*. 7 new combinations were made: *Bazzania luzonensis, B. halconiensis, B. elmeri, B. schadenbergii, B. cucullifolia, Telaranea semperiana* and *Microlepidozia gonyotricha*. — Author's Abstract

582.35
Pteridophytes.

25. THE PTERIDOPHYTES DESCRIBED FROM MOUNT MAKILING, LUZON. M. G. Price (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist*, June-July 1973, v.57, nos.1-2, p.37-48. 48 refs.

Mt. Makiling has been the source of the type specimens of 34 names of Pteridophytes, a possible 3 additional names with undetermined types, 2 contemplated for future publication and 2 *Nomina nuda* that have appeared in literature. Most names originated with the authors Brackenridge, Christ and Copeland. New interpretations are presented for 8 of the described names. *Oleandra maquilingensis* Copel., casually diagnosed from juvenile material, is adopted to replace the widely used *O. colubrina* (Blanco) Copel., best relegated to dubious status. — Author's Abstract

582.394
Ferns.

26. A NEW SPECIES OF GRAMMITIS FROM MOUNT BANAHAW, LUZON. M. G. Price (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist*, June-July 1973, v.57, nos.1-2, p.34-36. illus. 2 refs.

Grammitis alepidota, a tiny fern from Mt. Banahaw, characterized by lack of scales and sporangial-hairs, unbranched veins, a peculiar hairiness and small size, is described as new. — Author's Summary

582.394:581.45
Ferns.

27. A NOTE ON AN UNUSUAL NEST LEAF OF DRYNARIA. P. M. Zamora and N. S. Vargas (College of Arts and Sciences and Natural Science Research Center, University of the Philippines, Quezon City). *Philippine Agriculturist*, June-July 1973, v.57, nos.1-2, p.89-91. illus. 2 refs.

A *Drynaria sparsisora* plant in the UP Natural Science Research Fernery, bearing a fertile nest leaf among sterile nest leaves, is reported. The notable specimen is about 110 mm long and 95 mm wide, stalkless, harsh and scarious, oblong-ovate, with drynarioid pattern of venation and epicostular nectaries, shallowly lobed with 6 of the upper lobes soriferous, the sori at the junction where 2 or more veinlets meet, mostly round with some dumb-bell shaped and elongated ones, arranged in one or 2 more or less regular rows between the main veins not too different from those produced on the fertile adult type of foliage leaves of the species. Except for its remarkable soriferous nature, the specimen is similar in all its salient morphological attributes to the usual type of *Drynaria* nest leaves.

582.542(914)
Grasses.

28. ECONOMIC GRASSES OF THE PHILIPPINES. Jose Vera Santos. *Philippine Biota,* Aug. 1973, v.8, no.1, p.14-28. illus. 10 refs.

Ten common species of grasses of great economic value are described with illustrations, namely: 1) *Zea mays* Linn.; 2) *Coix lacryma-jobi* Linn.; 3) *Saccharum officinarum* Linn.; 4) *Vetiveria zizanioides* (Linn.) Nash; 5) *Thysanlaena maxima* (Roxb.) O. Ktze., 6) *Setaria italica* (Linn.) Beauv.; 7) *Brachiaria mutica* (Forssk.) Stapf; 8) *Panicum maximum* Jacq.; 9) *Oryza sativa* Linn.; and 10) *Leersia hexandra* Swartz. The general morphology of the vegetative and reproductive organs and their economic uses are given.

582.594.2
Orchids. Aerides lawrenciae.

29. NOTE: CYTOLOGY OF AERIDES LAWRENCIAE REICHB. F. VAR. LAWRENCIAE. R. C. Dolores (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Aug.-Sept. 1973, v.57, nos.3-4, p.178-186. tables, illus. 4 refs.

The entire haploid compliments of *Aerides lawrenciae* Reichb. var. *lawrenciae* was identified at pachytene stage indicating the relative length, the position of the centromere and distribution of the heterochromatic and euchromatic regions of the chromosome arms. The chromosome number of this variety was found to be 38. — Author's Abstract

ZOOLOGY

595.1:576.89:591.5(914)
Parasites — Migration.
Helminths — Parasitic in cattle.

30. EPIDEMIOLOGY OF BOVINE PARASITIC GASTROENTERITIS IN THE PHILIPPINES. II. OBSERVATIONS ON THE HORIZONTAL MIGRATION AND SURVIVAL OF COOPERIA SP. AND MECISTOCIRRUS SP. LARVAE ON THE PASTURE. Mario S. Tongson and Generoso D. Tong. *Philippine Journal of Veterinary Medicine,* June-Dec. 1973, v.12, nos.1-2, p.27-37. graph, table. 27 refs.

Larval migration by both species from the dung pat occurred as early as 9 days post-fecal deposition. All the larvae recovered at this period were within 6 in. from the periphery of the dung pat. The number of larvae present on the pasture varied at different periods of examination but the greatest number generally occurred following rainfall. A bi-weekly total precipitation of as low as 25.5 mm to 59.8 mm caused larval migration in appreciable number to the pasture grasses. No larvae of both species were recovered as far as 12-18 in. from the dung pat after a rainfall of 50.8 mm. They were found to survive on the pasture but not to exceed 8 wks.

595.132.8
Ascaris lumbricoides.

31. SEX RATIO OF ASCARIS LUMBRICOIDES. Edito G. Garcia (Institute of Public Health, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, Oct.-Dec. 1973, v.9, no.4, p.152-154. tables. 2 refs.

A total of 432 male and 1052 female ascarids were recovered from 100 autopsies with an overall male-female ratio of 1:2.44. All of the cases had at least a female ascarid. 90% of the cases had more female than male worms, 3 had more males than females and 6 had equal number of males and females. The presence of female worms in all of the cases indicates low probability of infections with male worms and reliability of demonstration of eggs in the feces as a basis for diagnosis of ascariasis even in very light infection.

595.771:591.5
Mosquitoes — Ecology.
Mosquitoes — Control.

32. ECOLOGY, BIONOMICS AND CONTROL OF AEDES (FINLAYA) POICILIUS THEO-

BALD, (DIPTERA: CULICIDAE). Enrique Schoenig. *Philippine Scientist,* 1973, p.35-51. tables. 11 refs.

Results of investigations conducted in Cebu City for a one-yr period revealed that: 1) *Aedes poicilius* bred extensively in the leaf axils of abaca plant (*Musa textilis* Nee) and banana plant [*Musa sapientum compressa* (Blanco) Theodoro]; 2) its population density was greatest in areas of about 10 km from the seashore and independent of human population; 3) the flight range was limited and that it preferred birds as their host rather than man; 4) the ovipositing females distributed their eggs over several leaf axils filled with water at a time, the eggs being longer and narrower than the eggs of related species; and 5) aside from using larvicides particularly Baygon EC, removing lower and older leaves from the trunks of abaca and bananas largely reduced its population.

599.323:591.13 599.323:636.085
Rats — Feeding — Experiments.
Feeding and feeding stuffs — Corn oil.
Feeding and feeding stuffs — Coconut oil.

33. EFFECTS OF COCONUT-CORN OIL MIXTURES ON WHITE RATS. Cristobal L. Miranda, Minda Caedo and Josefina M. Gonzales. *Philippine Journal of Nutrition,* April-June 1974, v.27, no.2, p.14-20. graph, tables. 19 refs.

Results showed that growth rates and serum cholesterol values of rats fed 10% coconut oil were comparable to those of rats fed the same percentage of corn oil and to those of the groups given the coconut oil-corn oil mixures. Coconut oil, however, tended to produce an abnormal deposition of fat in the liver. No variation in liver fat deposition was found in the groups fed the different mixtures of corn oil and coconut oil. The significance of these findings is discussed. — Authors' Summary

599.323:591.16
Rats — Reproduction.

34. THE REPRODUCTIVE PATTERN IN FIELD RATS UNDER LABORATORY CONDITIONS. Florencio I. S. Medina, III, Juana S. Gregorio and Benjamin de la Cruz (Philippine Atomic Energy Commission, Quezon City). *Animal Husbandry and Agricultural Journal,* Aug. 1973, v.8, p.26-27. graphs. 6 refs.

Results of the study conducted to establish the exact breeding seasons in field rats, *Rattus rattus mindanensis* (Mearns) showed a bi-modal breeding pattern with May and June as the first component and Sept. and Oct. as the second component. However, earlier observations indicated a whole year breeding pattern.

599.323:591.16
Rats — Reproduction.

35. A STUDY ON THE ADAPTATION OF FIELD RATS TO LABORATORY CONDITIONS. III. LITTER, SIZE AND SEX RATIO IN R. R. ARGENTIVENTER. F. I. S. Medina, C. L. Madriaga, B. de la Cruz, J. S. Gregorio, V. P. Evarretta and S. E. Barber (Philippine Atomic Energy Commission, Quezon City). *Animal Husbandry and Agricultural Journal,* July 1973, v.8, no.7, p.27-29. tables. 9 refs.

The mean litter size of laboratory-adapted captive *Rattus rattus argentiventer* kept at the Biomedical Research Dept., Philippine Atomic Research Center is 5.88 ± 0.26 ranging from 2 to 11 pups/litter. The sex ratio of the same colony of rats was observed to be 109 males to 100 females, which although above equality in favor of males may be normal for field rats.

MEDICAL SCIENCES
ANATOMY

611.12:616-073(=914)
Heart — Radiography.

36. CARDIO-THORACIC RATIO IN NORMAL FILIPINO ADULTS. Dorita Paylago-Evangelista and Godofredo R. Hebron (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal,* Nov. 1973, v.4, no.2, p.39-45. tables. 11 refs.

One hundred normal Filipino adults (aged 18-60 yrs) were x-rayed by the conventional chest postero-anterior (PA) view and chest antero-posterior (AP) view at 72" and 40" tube-film distance, respectively. Results showed that the maximum cardio-thoracic ratios or indexes in PA view for male and female are 0.50 and 0.49, respectively, while in the AP view, 0.53 for both male and female. Values above 0.53 signify enlarged heart for either sex. The cardio-thoracic ratio in the AP view is always slightly greater than in the PA view.

611.44:613.24(=914)
Thyroid gland function tests.

37. THYROID-FUNCTION STUDIES ON MALNOURISHED FILIPINO CHILDREN. Florosa A. Bautista, Flora M. Pascasio and Lucrecia Regala-Castillo (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal,* Nov. 1973, v.4, no.2, p.21-27. graphs, tables. 16 refs.

The thyroid functions of the 12 well nourished, 25 moderately malnourished and 19 severely malnourished children were studied using the Harvard scale percentile. Results showed that malnutrition has no significant effect on the thyroid function as evaluated by the protein bound iodine (PBI) and radioactive iodine (RAI) uptake. There was a difference in the total serum protein (TSP) among 3 study groups at 0.01 showing a decreasing level of TSP with the severity of malnutrition. Analysis of variance showed no statistical difference between the mean PBI and RAI uptake of the 3 groups. — Authors' Summary

611.98:616-089
Amputation.

38. BELOW KNEE AMPUTATION AND IMMEDIATE PROSTHETIC FITTING. Raul C. Grageda (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal,* Nov. 1973, v.4, no.2, p.47-53. tables. 9 refs.

The following types of operative techniques done in 46 cases of below the knee amputation at the Veterans Memorial Hospital were compared, namely: 1) anterior-posterior flap; 2) modified posterior flap with immediate prosthetic fitting; and 3 the guillotine type. The indications for amputation were ischemia, 58.7%; infection, 21.78%; trauma, 13%; and tumor, 6.52%. Encouraging results were obtained with the posterior flap with immediate prosthetic fitting. The rational and advantages of this technique are discussed.

PHYSIOLOGY

612.015:613.2
Bioenergetics — Man.

39. A STUDY OF THE ENERGY EXPENDITURE, DIETARY INTAKE, AND PATTERN OF DAILY ACTIVITY AMONG VARIOUS OCCUPATIONAL GROUPS. I. LAGUNA RICE FARMERS. Ma. Patrocinio E. de Guzman, Sheila R. Dominguez, Josie M. Kalaw, Rosa O. Basconcillo and Valentino F. Santos (Food and Nutrition Research Institute, Manila). *Philippine Journal of Science,* March 1974, v.103, no.1, p.53-65. graphs, tables. 18 refs.

Of the 33 farmers used in the study, 9 males were subjected to the 7-day assessment of the total daily energy expenditure and time spent on farming and basic activities as well as dietary intake, whereas 24 (15 males and 9 females) were used in the measurement of the calorie cost of the various farming activities. Results showed a mean energy expenditure of 3307 kcal. and a mean intake of 2471 kcal. for the 9 farmers studied. The percentage of time spent in the various activities performed by the 9 farmers and the metabolic cost of the various farming activities done by the 24 subjects are presented.

612.1:3-053.2(=914)
Blood volume determination.

40. BLOOD AND PLASMA VOLUMES OF NORMAL FILIPINO CHILDREN. Lucrecia Regala-Castillo, Flora M. Pascasio, Flora A. Bautista and Ofelia S. Carlo (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal,* May 1974, v.5, no.1, p.25-28. tables. 17 refs.

The study was conducted on 103 normal Filipino children, aged 2-13 yrs, using radio-ionated human serum albumin. Results showed that the whole blood, plasma and red cell volumes increased with age and are correlated with the increase in physical size and body surface area.

612.11(=914)
Immunoglobulins — Metabolism.

41. SERUM IMMUNOGLOBULIN LEVELS IN FILIPINOS. Benigno F. Agbayani, Alendry Caviles, Jr., Myrna Lomotan (College of Medicine, University of the Philippines, Manila) and Fernando Sanchez, Jr. (UE-RM Memorial Medical Center, Quezon City). *Acta Medica Philippina,* ser.2, April-June 1974, v.10, no.2, p.55-59. tables, illus. 8 refs.

The study was conducted on 208 subjects, aged 0-17 yrs, using immuno-diffusion methods. Results showed that the levels of immunoglobulin IgA and IgM are low in the newborns and increase with age while the level of IgG is consistently high from birth to adulthood. The mean adult levels for IgA, IgM and IgG are 333 ± 101, 171 ± 58 and 1942 ± 483 mg/100 ml, respectively. The Filipino values for preschool children and adults are significantly higher than those of most other ehtnic groups.

612.39:308:616-053.1/.2
Nutrition surveys.

42. THE NATIONAL NUTRITION PROGRAM — A PRELIMINARY REPORT STUDY ON THE MALNUTRITION PROBLEM OF THE PRE-SCHOOL CHILD. Lourdes M. Sumabat (Dept. of Health, Manila). *Philippine Journal of Nutrition,* July-Dec. 1973, v.26, nos.3-4, p.223-229. tables. 1 ref.

The survey conducted on 49,410 infants and children from July 1968 to June 1972 in 8 Health Regions of the country revealed the following results: 1) over 80% of the children were malnourished to some degree while 7.2% suffered severe or 3rd degree malnutrition; 2) the severity and prevalence of malnutrition persisted throughout the pre-school age period; 3) the incidence of malnutrition was higher in females (86.1%) than in males (82.8%); and 4) 72.4% were underweight to varying degrees of severity, indicating faulty weaning practices. Observations showed that improvement in child feeding or diet supplementation of malnourished children should be given highest priority.

612.39:616-053.1/.2
Child nutrition. ,

43. CHILD HEALTH, NUTRITION AND FAMILY SIZE: A COMPARATIVE STUDY OF RURAL AND URBAN CHILDREN. Virginia Balderrama-Guzman (Institute of Public Health, University of the Philippines, Manila). *Philippine Journal of Pediatrics,* Aug. 1973, v.22, no.4, p.129-143. graphs, tables. 2 refs.

Results of the study showed that the urban groups are taller than the rural groups from one to 5 yrs old although the latter showed better nutritional status than the former. The rising prevalence of malnutrition was observed with the increase in the number of living children in the family in both areas especially in the rural group. Dietary assessment of both groups indicated inadequacy of quantity and quality of important nutrients and protective elements needed for their growth and development. In other aspects of health and nutrition, both groups approximate each other.

612.398
Proteins. Coconut flour — Protein value.

44.,WHEAT AND COCONUT FLOUR PROTEIN UTILIZATION BY SIX YOUNG COLLEGE WOMEN. Candelaria S. Formacion, Jane Wentworth and R. P. Abernathy. *Philippine Journal of Nutrition,* Jan.-March 1974, v.27, no.1, p.42-47. tables. 11 refs.

A nitrogen balance study was carried out to determine the utilization of coconut flour protein as replacement of isonitrogenous amount of wheat flour protein and dry skimmed milk powder protein in the Nutribun formulation. The subjects were given low protein, high fruit and vegetable diet, supplemented with the regular Nutribun or the coconut Nutribun.

Results showed that the subjects with the highest and lowest nitrogen excretion when given the coconut Nutribun supplement had also the highest and lowest nitrogen excretions, respectively, when given the wheat Nutribun supplement. The use of coconut flour protein as replacement of a part of the wheat flour and powdered skim milk protein in regular Nutribun did not adversely affect the acceptability and the protein utilization of the coconut Nutribun. Further studies on the utilization and supplementary value of coconut flour when used with other protein sources in the diet and in other age groups are recommended.

612.432(=914)
Gonadotropins, Pituitary — Secretion

45. BIO-ASSAY OF HUMAN PITUITARY GONADOTROPINS IN NORMAL NON-PREGNANT FILIPINOS. Gloria T. Aragon, Conrado Ll. Lorenzo, Jr., Nenita G. Montalban and Arturo A. Librea. *Acta Medica Philippina,* ser.2, April-June 1974, v.10, no.2, p.41-46. graphs, tables. 17 refs.

Total urinary gonadotropins from 8 subjects aged 13-45 yrs were measured daily, from the 4th day of the menstrual cycle until the onset of the succeeding menstrual flow utilizing the modified Albert-Klinefelter method. Results showed that human pituitary gonadotropin starts appearing about the 4th day of the menstrual cycle and gradually rises until the 15th day of the cycle after which it gradually falls until the 29th day. About 50% of the subjects showed peak values from the 15th to the 17th of the cycle while the rest from the 21st to the 22nd day of the cycle. 5 out of 8 subjects showed 2 peaks in one menstrual cycle.

612.46:547.92(=914)
17-Ketosteroids — Urine.

46. 27-KETOSTEROID LEVELS AMONG FILIPINOS. Felicitas R. Fojas, Felicidad E. Anzaldo and Salvacion Y. Getigan (National Institute of Science & Technology, Manila). *Philippine Journal of Science,* March 1974, v.103, no.1 p.43-52. graphs, tables. 13 refs.

The method of Rappaport for the routine estimation of urinary 17-Ketosteroids was adopted to determine the normal levels among Filipinos of different age groups. The mean values obtained for children, adolescents and adults were 3.70 ± 0.30, 7.65 ± 0.41 and 10.93 ± 0.70 S.E. mg/day, respectively. Female children and adolescents have higher mean values than males, but among adults, males have high mean values.

612.664:612.662
Lactation. Amenorrhea.

47. LACTATION AND POSTPARTUM AMENORRHEA IN A RURAL COMMUNITY. Trinidad S. Osteria (Institute of Public Health, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, Oct.-Dec. 1973, v.9, no.4, p.144-151. graph, tables. 7 refs.

Studies conducted on 180 IUD acceptors in Bay (Laguna) revealed that: 1) the period of postpartum amenorrhea is longer for women who breastfed compared to those who did not; 2) menstruation seems to be restored sooner than the termination of lactation; 3) age and parity have positive effects on lactation and amenorrhea while the inverse relationship between education and breastfeeding and resumption of menstruation is notable; and 4) Bay wives have shorter breastfeeding and amenorrhea duration compared with data obtained for Taiwanese and Indian counterparts. Further quantitative analysis of other factors affecting amenorrhea, such as dietary pattern, supplemental feeding, nutritional status of the mother and other physiological variables, is suggested.

FOOD AND DIETETICS

613.2:308
Nutrition surveys.

48. DIETARY PATTERNS AND EATING HABITS OF PUBLIC HIGH SCHOOL STUDENTS: THE RELATION TO SOCIO-ECONOMIC STATUS. Ma. Patrocinio E. de Guzman, Alicia L. Lingao, Rudy H. Tan, Dolores S. Donato and Felices C. Cuaderno. *Philippine Journal of Nutrition,* Jan.-March 1974, v.27, no.1, p.1-10, 19. tables. 12 refs.

Results showed that 60% of the students both male and female) ate 5 times during the day. Lunch was the largest meal for the day independent of socio-economic status. An average of 10% of the students, majority of whom were females, failed to eat breakfast. Bread and/or rice, coffee with milk was the breakfast pattern for the average and below average groups, while bread and/or rice, egg and coffee with milk was the breakfast pattern for the above average group. Snack items for both mid-morning and mid-afternoon in all socio-economic levels were sandwich and a carbonated drink combination. Juice and fruit were eaten for snack by 6-15% of students in all socio-economic groups. For the 2 main meals (lunch and supper), rice, vegetable and meat were the usual pattern for the above average group while rice, vegetable and fish were preferred in the below average group. Fruit was not a popular item, however it was more usually eaten in the above average group. Recommendations for a better feeding program are given.

613.2:308
Nutrition surveys.

49. THE NUTRITIONAL CONTRIBUTION OF FOODS SERVED IN PUBLIC SECONDARY SCHOOLS IN METROPOLITAN MANILA. Alicia L. Lingao, Ma. Patrocinio E. de Guzman, Rudy H. Tan, Isabel C. Abdon, Tita B. del Rosario and Mercedes Soriano. *Philippine Journal of Nutrition,* Jan.-March 1974, v.27, no.1, p.11-19. graphs, tables. 17 refs.

A 3-day dietary survey, using the food weighing method, was conducted to determine the nutrient content of foods served in school canteens in the Metropolitan Manila area and the per serving portion nutrient values were evaluated against the recommended dietary allowances. Results showed that snack items in smaller and medium-sized schools have higher calorie, protein and iron values than in the bigger ones. Riboflavin and ascorbic acid contents of soups were also statistically higher in medium sized schools. Chemical analyses on composite samples of the meals showed that only iron met 1/3 of the day's allowances. Several suggestions for a nutrition oriented rather than a profit motivated attitude on the part of the management are given.

613.2:541.4
Chemical additives in food.

50. UNDERSTANDING FOOD ADDITIVES — NITRATES AND NITRITES, MONOSODIUM GLUTAMATE, ARTIFICIAL SWEETENERS AND COLORS. Alicia O. Lustre (National Institute of Science & Technology, Manila). *Proceedings of the Eight Annual Convention of the Philippine Association of Food Technologists,* Nov.27-28, 1973, p.4-15. 30 refs.

Food additives are synthetic and natural chemical compounds used in foods in very small amount to perform wide variety of functions as emulsifiers, thickeners and stabilizers, flavors and flavor enhancers, artificial sweeteners, preservatives, colors, leavening agents and a miscellaneous group compounds, such as clouding agents, anticaking agents and others. Information regarding the potential hazards posed to human health by nitrates, nitrites, monosodium glutamate, artificial sweeteners and colors are briefly discussed. Recommendations for the proper use of these additives in local foods are also given.

613.2:576.8.095.23 616.981.55
Food poisoning. Botulism.

51. MICROBIAL CONTAMINANTS IN FOOD. Ruben B. Aspiras (College of Agriculture, UPLB, College, Laguna). *Proceedings of the Eight Annual Convention of the Philippine Association of Food Technologists,* Nov. 27-28, 1973, p.35-39. table. 12 refs.

Bacterial food poisoning with emphasis on botulism is presented. The Gram-positive, rod-shaped, spore-forming and anaerobic organism, *Clostridium botulinum,* produces a highly poisonous toxin affecting the nervous system and often causes death. The characteristics of the toxin, distribution, heat resistance and other preventive measures of the spores are given. Almost all the botulism outbreaks were caused by eating uncooked or slightly cooked fish, fish eggs or sea mammals. Other bacteria responsible for food poisoning, such as *Salmonella, Staphylococcus* and *C. perfringens,* are briefly discussed.

613.2:612.017
Food additives — Toxicity.
Food contamination.

52. PHYSIOLOGICAL EFFECTS OF FOOD ADDITIVES AND CONTAMINANTS. Quintin L. Kintanar (National Institute of Science & Technology, Manila). *Proceedings of the Eight Annual Convention of the Philippine Association of Food Technologists,* Nov. 27-28, 1973, p.56-63.

A functional classification of food additives and contaminants, indicating their uses if any, is presented. Their physiologic and/or possible toxic, and other undesirable effects are also briefly discussed, but a re-evaluation of the accepted ones is suggested in order to have scientific basis for such findings instead of mere impressions.

613.2:632.95
Food contamination — Drugs and pesticides.

53. PESTICIDE RESIDUES IN FOOD — A PROBLEM? Carlito R. Barril (College of Sciences and Humanities, UPLB, College, Laguna). *Proceedings of the Eight Annual Convention of the Philippine Association of Food Technologists.* Nov. 27-28, 1973, p.16-27. tables. 14 refs.

The 3 aspects of the problem of pesticide residues in food are discussed, namely: 1) the chemical nature and effectivity of the pesticides; 2) their safety in use and to the consumers of the treated produce including the legal aspect; and 3) the methods of residue analysis including the prevention of over-tolerance residues. Results of residue analysis in some fishes and vegetables showed that there is a general presence of chlorinated pesticides which seem to have increased during the period under consideration. Some samples showed considerable levels of the common organophosphate insecticides. In view of the widespread use and proliferation of pesticides in the country, the problem of pesticide residues not only in food but in the general environment, appears so real and warrants our concern for further investigation and immediate action from the government.

613.22(=914)
Infants' food.

54. ACCEPTABILITY OF NEW FAT BLEND MILK FORMULA AMONG FILIPINO INFANTS. Antonio Dennis Reis (University of Santo Tomas, Manila). *Filipino Family Physician,* July-Sept. 1973, v.11, no.3, p.1-15. graphs, tables. 5 refs.

Observations on 146 infants fed with a new fat blend milk formula and a control fat blend milk formula for one-8 wks in a double blind tolerance study showed no significant differences in the incidence of allergy and intolerance, heights and weights to either formula. 6 of 75 babies in the new fat blend group and 6 of 71 babies in the control group had symptoms presumptive of milk allergy or intolerance. Based on these findings, the new fat blend milk formula is acceptable to newborn babies and infants.

613.24:616-053.2
Protein-calorie malnutrition.

55. A COMPREHENSIVE STUDY OF PROTEIN-CALORIE MALNUTRITION AT THE NATIONAL CHILDREN'S HOSPITAL. C. J. Agregado, F. Medina, M. S. D. Dulog, S. G. Martin and N. Pascual (National Children s Hospital, Quezon City). *Philippine Journal of Pediatrics,* Aug. 1973, v.22, no.4, p.113-128. graphs, tables. 12 refs.

Of the 50 children studied, 24 were diagnosed as marasmus and 26 as kwashiorkor. Various anthropometric measurements and nutritional classification of the children showed that they are markedly below the malnutrition borderline and are subnormal in subcutaneous development indicating inadequate supply of protein and calories. However ecology is an important contributing factor to cause protein-calorie malnutrition.

PHARMACY. PHARMACOLOGY

615.32:616-056.3
Allergens — Therapeutic use.

56. CLINICAL EVALUATION OF NIST-PRODUCED ALLERGENIC EXTRACTS. PART II. HYPOSENSITIZATION INJECTION TREATMENT WITH POLLEN EXTRACTS. Eleonora P. Dacanay, Oscar Laurel and Josefina B. Manalo (National Institute of Science & Technology, Manila). *Philippine Journal of Science,* March-June 1972(1974), v.101, nos.1-2, p.15-30. tables. 17 refs.

Hyposensitization injection treatment for at least a year with yard grass *[Eleusine indica* (L.) Geartn.], amorsecos (*Andropogon aciculatus* Retz.), alabang x [*Dicanthium aristatum* (Poir) C.E. Hubb], bermuda grass *[Cynodon dactylon* (L.) Pers.] and urai weed (*Amaranthus spinosus* Linn.) was undertaken in 22 patients with allergic perennial or nonseasonal rhinitis and/or nonseasonal asthma. Significant improvement was noted in 74% and 69% of the rhinitis and asthmatic patients, respectively. Except for a few unpleasant symptoms due to intolerance to the dose concentration in a few patients, no further untoward reactions were noted from the prolonged use of these NIST-prepared allergenic extracts. — Authors' Abstract

615.43:615.779
Antibiotics, Antifungal — Isolation & purification.

57. NOVALICHIN, AN ANTIFUNGAL ANTIBIOTIC. Teresita N. Tumangan, Patrocinio S. Santos and Antonio J. Gabriel. *Acta Manilana,* ser.A. Nov.1973, no.11(18), p.19-40. charts, graphs, tables, illus. 11 refs.

Novalichin was isolated from the filter cake of the fermented broth of *Paecilomyces fusisporus* ATCC 24148. It strongly inhibits the growth of some filamentous fungi and yeasts, especially the plant pathogen *Ceratostomella paradoxa* and *Candida albicans,* but has no effect on bacteria. The production, isolation and preliminary characterization of this antibiotic are discussed.

615.471
Vision tests. Visual acuity.

58. STANDARD VISUAL ACUITY TESTS CHARTS (SQUARES AND CIRCLES). Ulyses M. Carbajal. *Journal of the Philippine Medical Association,* Oct. 1973, v.49, no.10, p.477-481. illus.

The Standard Visual Acuity Test Chart is made up of cartolina paper on which the squares or circles of diminishing proportions are drawn with Indian Ink. The patient is challenged to locate the inner tiny square or circle, attached within the square or circle in any of the 4 directions: top, bottom, left side and right side. No deviation on visual notation was made to prevent confusion in office and hospital records of vision that used the Snellen Test Chart over the past years. These new visual test charts are easy and cheap to produce and found to yield more uniform results than in the ordinary Snellen Test Chart. Advantages of the test chart are given.

615.472:618.4
Delivery — Instrumentation.

59. VACUUM EXTRACTION VERSUS FORCEPS APPLICATION. A COMPARATIVE STUDY ON THE EFFECTS TO THE NEONATE. Teresita C. Guerrero (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal,* May 1974, v.5, no.1, p.29-32. tables. 9 refs.

Two hundred sixty four vacuum extraction and 41 forceps application deliveries comprising of 3.0% and 0.6%, respectively, of 6638 deliveries at the Veterans Memorial Hospital were studied for a 6-yr period to compare the morbidity caused by these 2 methods. Results showed that there were more babies in the forceps group who had low Apgar scores but morbidity was more apparent in the vacuum extraction group. No deaths were attributed to the procedure in both modes of delivery. There were no permanent sequelae in both methods. Although the forceps group produced lesser complications to the neonate, vacuum extraction is still felt to be a useful method of hastening delivery.

DISEASES. PATHOLOGY. SURGERY

616-006.6
Sweat gland neoplasms.

60. SWEAT GLAND CARCINOMA OF THE FINGER WITH METASTASES. A CASE REPORT WITH A REVIEW OF THE LITERATURE. Ruben P. Arafiles and Jose V. Silao, Jr. (College of Medicine, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, Jan.-March 1974, v.10, no.1, p.14-19. table, illus. 7 refs.

An unusual case of sweat gland carcinoma of the finger in a 72-yr-old female with metastases to the back and regional lymph nodes is reported. The clinical picture differs considerably from those cases previously reported in that there is no history of a benign lesion of long duration, and metastases is as early as 6 wks. — Authors' Abstract

616-007
Arachnodactyly.

61. MARFAN'S SYNDROME. A CASE REPORT. Petrona D. Noblejas and Eleanor G. Hembrador (UST Research Center, Manila). *Acta Manilana,* ser.A, July 1973, no.10(17), p.29-50. tables, illus. 7 refs.

A case of a rare heritable defect of connective tissue involving the eye, cardiovascular and skeletal systems, characteristics of Marfan syndrome appearing in 2 or 3 generations is reported. Inherited as an autosomal dominant trait, the gene shows variable expressivity among the different members within the same family. A follow-up of this affected family is necessary to fully assess the progress of each individual as well as their future offsprings.

616-007
Mucopolysaccharidosis — Familial & genetic.

62. X-LINKED MUCOPOLYSACCHARIDOSIS. A CASE REPORT. Petrona D. Noblejas, Eleanor G. Hembrador (UST Research Center, Manila), Isidora Yatco-Zalamea, Rosalina Bernardo-Joson and Felix Estrada (UST Hospital, Manila). *Acta Manilana,* ser.A, Nov. 1973, no.11 (18), p.3-18. table, illus. 6 refs.

A family with 3 male sibs affected with X-linked form of mucopolysaccharide storage disease, as established on the basis of clinical, radiological and genetic studies, is presented. The affected males present the phenotypic characteristics of Hunter syndrome as dwarfing, hepatosplenomegaly, stiff joints with claw hands, coarse faces, short neck, hernias, chronic rhinitis and mental retardation. The oldest, although phenotypically normal except for a left inguinal hernia, may be considered as a forme fruste case of the syndrome.

616.12
Coronary disease — Occurrence.

63. CORONARY ARTERY DISEASE IN A RURAL COMMUNITY. Santiago V. de Guzman, Warlito Rollolazo, Virginia B. Guzman and Arturo Librea. *Journal of the Philippine Medical Association,* July 1973, v.49, no.7, p.369-377. tables. 9 refs.

The study conducted on 535 subjects aged 40 yrs and above revealed that 33 (21 females and 12 males) had coronary artery disease. The females in the 40-59 and 45-59 age groups showed higher levels of cholesterol and higher blood pressure, respectively, compared to the males. Among those afflicted with the disease, one or a combination of some risk factors (elevated cholesterol, sugar and systolic blood pressure) were found in 15 females and in 9 males.

616.12:615.71
Heart diseases — Drug therapy.

64. EFFECT OF "JATROPHA CURCAS" LEAVES ON TURTLE HEART PREPARATIONS. Horacio R. Estrada, Quintin L. Kintanar, Jose V. Trinidad and Belinda Ambay. *Acta Medica Philippina,* ser.2, April-June 1974, v.10, no.2, p.60-61. table. 4 refs.

Results showed that a 10% aqueous infusions of the leaves of *"Jatropha curcas"* Linn. in 8 Straub-Feuehner turtle heart preparations apparently increased amplitude of cardiac contractions. It has no consistent effect on heart rate. Improvement in amplitude of contraction with smaller doses is immediate and slight. However, larger doses cause an initial decrease in amplitude followed by a larger and more prolonged increase in amplitude of contraction.

616.12-02 616.24-02
Heart diseases — Etiology.
Lung diseases — Etiology.

65. KYPHOSCOLIOTIC HEART DISEASE: REPORT OF A CASE. Marcelito L. Durante (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal,* May 1974, v.5, no.1, p.59-62. 11 refs.

A case of a 37-yr-old female with acquired Kyphoscoliosis, which subsequently developed secondary cardiopulmonary failure, is reported. Recognition of the syndrome was made from symptomatology and laboratory examinations including pulmonary function tests showing restricted volumes, alveolar hypo-ventilation, hypercapnia and arterial oxygen unsaturation usually precipitated by pulmonary infection with evidence of cor pulmonale. Hemodynamics, medical and surgical approach to the management of these cases and prognosis are discussed. — Author's Abstract

616.13:616-002.5
Aortic aneurysm. Tuberculosis.

66. EXTENSIVE DISSEMINATED TUBERCULOSIS WITH TUBERCULOUS AORTIC FALSE ANEURYSM AND RUPTURE (CASE REPORT). Tiburcio A. Leonin, Jr. and Lydia de Vera-San Jose (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal,* Nov. 1974, v.5, no.2, p.147-152. 10 refs.

A very rare case of chronic fibrocaseus tuberculous aortitis with false aneurysm and rupture into the stomach is presented. Other organs and structures involved were the lungs, stomach, liver and peritoneum. The histo-pathogenesis is also discussed. The presence of extensive pulmonary tuberculosis should make one aware of the possibility of extrapulmonary forms; occasionally, evidence of extrapulmonary tuberculosis may provide a clue to the presence of pulmonary tuberculosis. — Authors' Abstract

616.15(=914)
Eosinophilia — Blood.

67. TROPICAL SYNDROMES WITH EOSINOPHILIA AMONG FILIPINOS. Angelina Arcilla-Latonia, Lucille Martelino Diaz de Rivera, Perpetua Lacson and Catherine B. Puzon. *Journal of the Philippine Medical Association,* July 1973, v.49, no.7, p.333-362. graphs, tables, illus. 53 refs.

Results of the 16-mo.-preliminary study on 4 types of tropical syndromes associated with eosinophilia, namely visceral larva migrans, tropical eosinophilia, eosinophilic meningo-encephalitis and fecal eosinophilia are presented in detail with suggested methods of more specific clinical and laboratory diagnoses. In spite of the frequent findings of blood eosinophilia among the Filipinos, those syndromes are relatively infrequent.

616.15(=914)
Thalassemia — Blood.

68. BETA-THALASSEMIA — HEMOGLOBIN E DISEASE IN FILIPINOS. Perpetua S. Lacson. *Philippine Journal of Pediatrics,* Dec. 1973, v.23, no.6, p.209-227. tables, illus. 18 refs.

The clinical, hematologic, electrophoretic and genetic studies conducted on 5 patients who proved to have a double heterozygous hemoglobinapathy are reported. The disease which is previously diagnosed as congenital hemolytic anemia is clinically similar to cases formerly known as "Stransky-Regala type of hemolytic anemia". One of the patients had in addition, the stigmata of association with an alpha-thalassemia variant.

616.155.1-02(=914)
Anemia — Etiology. ,

69. NUTRITIONAL ANEMIA IN FILIPINO SCHOOL CHLDREN. Victor O. Tantengco, Anita M. Marzan, Nenita Rapanot, Nora Villanueva and Corazon R. de Castro. *Journal of the Philippine Medical Association,* Sept. 1973, v.9, no.9, p.419-433. graphs, tables. 15 refs.

Complete hematologic examinations were performed and parameters of nutritional anemia were measured on 465 children of both sexes aged 6-13 yrs from Manila and Rizal province. Results showed that prevalence of anemia as defined by WHO criteria below 12% was 47.2 in the 6-9-yr-old subjects, 21% in 10-13-yr-old males and 32% in 10-13-yr-old females; whereas prevalence of iron deficiency with the same criteria with a transferrin saturation index below 15% was observed in 19%, 16% and 15%, respectively, of the 3 age groups. The effect of parasitism and prevalence of folate and vitamin B_{12} deficiency were not significant to cause anemia. Dietary origin of anemia may be explained on the basis of low availability of dietary iron for absorption.

616.214-007
Nose deformities.

70. NASAL DEFORMITIES DUE TO INJECTABLES. Burgos T. Sayoc. *Journal of the Philippine Medical Association,* Oct. 1973, v.49, no.10, p.482-488. illus. 3 refs.

The management of nasal deformity due to injectables based on some cases of operation is presented. Of the 128 deformed cases seen in Sayoc EENT Clinic, 89 were injected into the nose, 59 with paraffine and 30 with Sakurai fluid. The injections were mostly done by cosmetologists, doctors and dentists. The procedure has been tolerated by authorities concerned in spite of the reported dangers and complications. However, the Philippine Cancer Society, in coordination with the Philippine Medical Association and the Food and Drug representatives, had agreed to put up a concerted action to forewarn the public of the dangers and complications of injectables in any part of the human body particularly the breast.

616.24-002.5:615.72
Antitubercular agents — Therapeutic use.

71. COMPARATIVE STUDY OF SECONDARY ANTI-TB DRUGS IN THE RETREATMENT OF PULMONARY TUBERCULOSIS AT THE VETERANS MEMORIAL HOSPITAL. Edgardo V. Julian, Rolando S. Punzalan, Alma Ramirez-Fausto and Santiago D. Morao (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal,* May 1974, v.5, no.1, p.13-17. tables. 9 refs.

The comparative efficacy, toxicity and acceptability of some of the more accepted secondary drugs were evaluated based on sputum conversion, radiologic improvement, clinical response and toxicity. Results showed that Cycloserine, Ethambutol and Rifampicin were superior in all aspects of clinical evaluation. However, Ethambutol is the practical drug of choice because Cycloserine which is as effective is too toxic and Rifampicin which is most effective is too costly.

616.24-002.5:615.72
Tuberculosis, Pulmonary — Drug therapy.

72. COMPARATIVE STUDY BETWEEN ISONIAZID-ETHAMBUTOL AND ISONIAZID-PARA-AMINOSALICYLIC ACID COMBINATIONS IN THE TREATMENT OF PULMONARY TUBERCULOSIS. Beatriz Mercader-Pangilinan and Rolando S. Punzalan (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal,* Nov. 1973, v.4, no.2, p.9-14. graph, tables. 13 refs.

Fifty patients with moderate or far advanced pulmonary tuberculosis were given conventional doses of INH and Ethambutol and INH and PAS combinations. After 6 mo., based on clinical response, radiological improvement and bacteriological conversion, INH-EMB combination showed better results than INH-PAS combination.

616.24-002.5:615.72
Tuberculosis, Pulmonary — Drug therapy.

73. TERIZIDONE (TERIVALIDIN) IN THE RETREATMENT OF PULMONARY TUBERCULOSIS AT THE VETERANS MEMORIAL HOSPITAL. A PRELIMINARY REPORT. Tiburcio A. Leonin, Jr., Estrella Amon-San Jose and Edgardo V. Julian (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Jour-*

nal, Nov. 1973, v.4, no.2, p.15-20. tables. 8 refs.

Among the 6 far advanced resistant pulmonary tuberculosis cases treated with Terizidone for a period of 6 mo., only one showed severe toxic reaction. It was dropped from the study. However, the symptoms disappeared upon discontinuance of the drug. All of the 5 cases manifested remarkable clinical improvement with sputum conversion. Laboratory examinations remained normal throughout. No liver, renal and bone marrow toxicities were encountered. Neurotoxic reactions in 2 cases were observed. With these findings, Terizidone is further recommended for clinical trial.

616.24-053.2:612.1
Pneumonia — Blood.

74. THE RELATIONSHIP OF LEUKOCYTE COUNT AND CLINICAL RESPONSE IN CHILDHOOD PNEUMONIA. Gloramelia S. Daño and Aurea Tobias-Quiroz (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal,* May 1974, v.5, no.1, p.39-46. graphs, table, illus. 12 refs.

A total of 150 children with clinical and roentgenographic diagnosis of pneumonia were used in the study. The age incidence, sex type of pneumonia (by x-ray), nasopharyngeal cultures, temp., treatment and clinical response and their relation to WBC count were evaluated. Observation showed that children with high WBC have a good clinical response as compared to those with low WBC. The degree of temp. elevation in the presence of a high WBC can give a clue regarding patients' clinical course. Also, *Diplococcus* pneumonia as the etiologic cause of pneumonia has a better outcome than when due to other causes.

616.24-08
Pneumothorax — Therapy.

75. PITFALLS IN THE MANAGEMENT OF SPONTANEOUS PNEUMOTHORAX. Jesus de Jesus, Pascual Alvarez, Lourdes Barreto and and Oscar Lopez. *Chest Diseases,* Dec. 1973, v.8, no.5, p.6-18. tables, illus. 12 refs.

A review of 1614 cases of spontaneous pneumothorax encountered among 74,814 admitted cases over a 10-yr period (1962-1972) in Quezon Institute (Quezon City) revealed a higher incidence in males (66.91%) than in females (33.09%) with rupture occurring frequently in the right than in the left lung. Rupture occurred in 0.5% bilaterally but not simultaneously. Some of the pitfalls in the management of this condition were errors in chest x-ray interpretation, poorly placed thoracostomy tube, premature removal of thoracostomy tube, empyema and complicating broncho-pleural fistula, multiple blebs and bullae, miliary TB, pleuro-pulmonary adhesions, hemothorax, mediastinal and subcutaneous emphysema and acute unilateral pulmonary edema. Management consists of conservative treatment, decompression, intubation and major surgical procedures. The overall mortality rate was 3.03%.

616.248-085
Asthma — Drug therapy.
Bronchodilator agents — Therapeutic use.

76. CLINICAL EXPERIENCE WITH FENOTEROL IN CHRONIC BRONCHIAL ASTHMA. Tiburcio A. Leonin, Jr. and Nemesia Madamba-Inco (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal,* Nov. 1974, v.5, no.2, p.91-96. table. 22 refs.

Fenoterol was clinically tested on 30 chronic bronchial asthma cases. While palpitation was likewise noted, this was negligible and transient. Fenoterol is a highly effective and powerful bronchodilator with prolonged duration of effectiveness and negligible reactions. Its action is mainly selective on B-2 adrenoceptor. — Authors' Abstract

616.248-085:547.92
Asthma — Drug therapy.
Steroids — Therapeutic use.

77. BECLOMETHASONE DIPROPIONATE (BECOTIDE) INHALER STEROID AEROSOL IN THE TREATMENT OF CHRONIC BRON-

CHIAL ASTHMA. Rolando S. Punzalan, Santiago D. Morao and Tiburcio A. Leonin (Veterans Memorial Hospital, Quezon City). *Filipino Family Physician,* Oct.-Dec. 1974, v.12, no.4, p.1-6. tables. 14 refs.

Thirteen chronic asthmatic patients, whose ages ranged from 19 to 59 yrs, were given Beclomethasone dipropionate aerosol for a 6-yr period. Patients were grouped as oral steroid users (6 cases) and non-oral steroid users (7 cases). Results showed that 100% and 83.3% of the non-oral steroid and oral steroid users, respectively, improved with the treatment. Steroid aerosol significantly reduced the severity and frequency of asthmatic attacks without side effects.

616.314
Dental care.

78. MEDICAL EMERGENCIES IN THE DENTAL CLINIC. Primitivo D. Chua. *Filipino Family Physician,* July-Sept. 1973, v.11, no.3, p.35-38.

The common medical emergencies encountered during dental extractions, such as hemorrhages, cardio-vascular conditions, anaphylaxis and allergies insulin shock, epileptic attack or convulsive disorders, asthmatic attack, mechanical respiratory embarrassment and fainting or syncope and their treatments, are briefly discussed. Patients with history of chronic skin diseases, asthma, sinusitis and body itching must be looked upon with suspicion and skin test must be performed before giving any injectible antibiotics, anesthetics or other drugs. Moreover, it is best for the dentist to communicate with the patient's family physician to check the medical background.

616.314-073:616-089
Tooth, Unerupted — Radiography.
Tooth, Unerupted — Surgery.

79. IMPORTANCE OF ROENTGENOGRAMS IN DETECTING LESIONS OF THE JAWS. Lea Della Marabut-Abia and Lorenzo G. Almeda (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal,* Nov. 1973, v.4, no.2, p.73-76. 2 refs.

Four surgical dental cases which consist of unerupted teeth, cystic lesions, odontoma and superumerary teeth are presented. These should not have occurred if proper diagnosis and routine x-ray examination were done before denture construction. The use of roentgenographic examination in dental practice is emphasized.

616.314-083
Dental caries — Prevention & control.

80. PREVENTION OF DENTAL CARIES. Maruja D. Seludo (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal,* May 1974, v.5, no.1, p.55-57. 4 refs.

The most promising solution to the eventual elimination of dental caries can be drawn from the brief discussion of the use of antibiotics, proper tooth brushing, good nutrition, topical application of flouride and the use of adhesives.

616.322-093:615.72
Tonsillitis — Microbiology.
Tonsillitis — Drug therapy.

81. MICROORGANISMS FOUND IN CHRONIC TONSILLITIS. Lilia Luczon-Lorenzana (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal,* Nov. 1973, v.4, no.2, p.69-72. tables. 5 refs.

Culture and sensitivity studies of throat swab of 110 cases with chronic tonsillitis were done at the Veterans Memorial Hospital, 26 of which underwent tonsillectomy for several indications. *Staphylococcus albus* and *Streptococcus* were the most common microorganisms found before and after tonsillectomy. Tetracycline, Gentamycin and Chloramphenicol preparations were the antimicrobials in which the microorganisms mostly responded. Reinfection recurred in 6 patients after tonsillectomy.

616.379-06(=914) 616.12-02
Diabetes mellitus — Complications.
Coronary disease — Etiology.

82. CORONARY ARTERY DISEASE IN FILIPINO DIABETICS. Aurora Villegas-Cinco,

Benjamin N. Alimurung and Mariano M. Alimurung (University of Santo Tomas, Manila). *Philippine Journal of Cardiology,* Jan.-March 1974, v.2, no.1, p.13-20. tables. 28 refs.

The study was made on 1124 diabetic patients for a period of 10 yrs. Frequencies of coronary artery disease were found to be lower than those reported abroad particularly in the United States. Most cases occurred between the ages of 50 and 70 yrs. Risk factors in this disease include hyperglycemia, hypercholesterolemia and hypertension. It was observed that a large number of the cases do not experience chest pain at all. Of the several treatments administered, insulin therapy is the most recommended to lessen the risk of coronary heart disease.

616.44-09
Thyroid diseases — Pathology.

83. A CLINICO-PATHOLOGICAL ANALYSIS OF SURGICAL THYROID CASES IN THE VETERANS MEMORIAL HOSPITAL DURING A TEN-YEAR PERIOD (1961-1970). Clementino O. Purisima. *Veterans Memorial Hospital Journal,* May 1974, v.5, no.1, p.33-38. tables. 10 refs.

The following observations in 599 surgical thyroid cases were noted: 1) approximately 3.3% of surgical admissions were goiter cases, 75-80% of which were nodular goiters and 15%, thyroid adenomas; 2) the gross incidence of thyroid carcinomas in surgically removed goiters was 10.7%, while incidence of carcinoma in goiter, namely nodular, solitary nodules and multinodular were 1.7, 1.5 and 2.6 times greater in male than in female, respectively, 3) adenomatous goiter was the most common condition (45% of the cases admitted for surgery); and 4) papillary carcinoma was the most common thyroid cancer.

616.45-006-053.1/.2:616-089
Adrenogenital syndrome — Surgery.
Cushing's syndrome — Surgery.

84. ADRENOCORTICAL TUMORS IN INFANTS AND CHILDREN. Pedro M. Reyes, Jr. (College of Medicine, University of the Philippines, Manila). *Philippine Journal of Pediatrics,* Dec. 1973, v.22, no.6, p.244-249. tables. 3 refs.

Four cases of hyperadreno-corticism due to tumor are presented, 3 cases of which were Cushing's syndrome and one, as an adrenogenital syndrome. Of the adrenocortical cancers, only the infant survived. Pointers in the investigative, operative and post-operative management of the patients are given.

616.61:544.62
Kidney calculi. Spectrum analysis.

85. INFRARED SPECTROSCOPY FOR RENAL STONE DETERMINATION. Manuel D. Navarro and Beatrice Q. Guevara (UST Research Center, Manila). *Acta Manilana,* ser. A, July 1973, no.10(17), p.3-11. graphs. 21 refs.

In the analysis of the renal stones, KBr technique was used and the "fingerprinting" was also used which involved the comparison of the spectrum of an unknown sample with that of a known standard. The cases under discussion illustrate the ease and degree of certainty with which infrared spectra can be used to identify qualitatively and semi-quantitatively the composition of renal calculi.

616.71
Osteoporosis.

86. IDIOPATHIC OSTEOPOROSIS. Elisea N. Singson, Flora M. Pascasio and Gabriel G. Carreon (College of Medicine, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, Oct.-Dec. 1973, v.9, no.4, p.155-159. table, illus. 7 refs.

A rare case of idiopathic juvenile osteoporosis in a 17-yr-old female is reported. Complaints were pain on the right ankle and progressive decrease in height with a loss of 3-4 in. in a year's time. Radiographic examination showed codfish vertebrae and the generalized osteoporosis was confirmed by a bone biopsy. No endocrine, nutritional or non-endocrine causes of osteoporosis were demonstrated. Calcium supplements, vitamin D therapy, low phosphorus intake and phosphate binders are suggested to shorten the course of the disease.

616.71-001.5 616-007
Osteogenesis imperfecta.

87. OSTEOGENESIS IMPERFECTA — A REPORT OF 4 CASES FROM THE UST HOSPITAL. Petrona Noblejas and Eleanor G. Hembrador (UST Research Center, Manila). *Acta Manilana,* ser. A, June 1974, no.12(19), p.3-29. table, illus. 13 refs.

Four cases with tendency to fractures of the long bones, with or without blue sclerae and deafness characteristic of osteogenesis imperfecta are presented. Diagnosis was based mainly on the x-ray findings, physical examination and family pedigree. Some of the clinical manifestations observed in the first case were the hydrocephalus with thinning of the calvarium, blue sclerae, micromelia, multiple fractures with callus formation and deformation of the long bones and ribs, and bilateral inguinal hernia. The other cases showed the characteristic of tarda or mild type appearing during childhood or later in adulthood. Most cases reported are the result of new mutations and only a few follow the typical dominant pattern of inheritance. It has been found to be slightly more prevalent in females than in males.

616.71-053.2
Myeloproliferative disorders.

88. NON-LEUKEMIC MYELOPROLIFERATIVE DISORDERS IN CHILDREN. Ambrocio M. Reyes, Victoria Gahol and Angel Ramirez, Jr. *Philippine Journal of Pediatrics,* Dec. 1973, v.22, no.6, p.228-243. tables, illus. 17 refs.

The 10 cases believed to be under the category of myelosclerosis with myeloid metaplasia (agnogenic myeloid metaplasia) presented the following features: 1) very frequently seen in infancy and childhood; 2) males predominating over females; 3) progressive anemia, lymphadenopathies, hepatomegally associated with striking splenomegaly and minimal bleeding tendencies; 4) invariably short course and fatal; 5) leucocytosis to hyperleucocytosis with outstanding erythroblastosis (leucocrythroblastosis), leukomoid reaction, reticulocytosis and thrombocytopenia; 6) predominant hypercellularity of the marrow and rarely myelosclerosis; 7) significant inadequacy of megakaryocytes in the marrow; 8) granulocytic, erythrocytic and megakaryocytic metaplasia in the spleen, predominantly erythroid (extra-medullary hematopoiesis); and 9) postmortem studies show cellular infiltrates affecting practically all organs and systems and producing total disruption of lymphoid follicles mistakenly diagnosed as leukemia.

616.714-007
Craniofacial dysostosis.

89. GREIG'S SYNDROME: REPORT OF A CASE. Leonardo A. Borromeo (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal,* Nov. 1973, v.4, no.2, p.83-86. illus. 7 refs.

A case of ocular hypertelorism, associated with complete cleft palate, polydactylism and mental retardation, is reported. The syndrome apparently results from malformation due to defective development of mesodermal tissues surrounding the brain. The need for x-ray studies is emphasized. There is no known treatment except palliative for the deformities and special training for the mentally deficient children.

616.833-006-07 616.833-006-089
Neurilemmoma — Diagnosis.
Neurilemmoma — Surgery.

90. DIAGNOSIS AND SURGICAL MANAGEMENT OF PERIPHERAL NEURILEMOMA. A REPORT OF 114 CASES TREATED AT THE PHILIPPINE GENERAL HOSPITAL. Jose V. Silao, Jr. and Ruben P. Arafiles (College of Medicine, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, April-June 1974, v.10, no.2, p.47-54. graphs, tables, illus. 10 refs.

The clinical features of 114 cases of neurilemoma ranging in age from 7 to 75 yrs, treated in a 13-yr-period, are presented. The finding of paresthesia radiating to the distribution of the nerve involved on percussion of the tumor mass, is of great value in the diagnosis. A detailed review of literature is given. — Authors' Abstract

616.89
Behavior.

91. A STUDY OF EPISODIC DYSCONTROL IN PATIENTS ADMITTED AT VETERANS MEMORIAL HOSPITAL. Myrlinda V. Barral (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal,* Nov. 1973, v.4, no.2, p.55-63. tables. 15 refs.

Fifty patients with main clinical symptom of violence or of agression were reviewed. It was shown that violence results from the interplay of various but cohesive factors as personality, environment, social functions, brain dysfunction and psychogenic causes. It is stressed that proper attitude should be maintained in order to control or eliminate such episodic dyscontrol. Several approaches to deal with the patients' multifactoral problem are recommended. — Author's Abstract

616.915-036.2(914)
Measles — Epidemiology.

92. THE EPIDEMIOLOGY OF MEASLES IN THE PHILIPPINES BASED ON THE ANTIBODY PROFILE IN RURAL AND URBAN AREAS. Fe del Mundo and Ludovina Buendia (Children's Medical Center Philippines, Inc., Quezon City). *Journal of the Philippine Medical Association,* Aug. 1973, v.49, no.8, p.399-403. graph, table. 10 refs.

A total of 322 satisfactory blood sera, obtained from individuals with ages ranging from 5 mo. to 4 yrs in rural and urban areas, were serologically tested with Hemagglutination-inhibition technique. Results showed that 25% and 50% of the infants (2 yrs and below) in rural and urban, respectively, contracted the disease and doubled at preschool ages when malnutrition was highest in the country. At school age, 69% and 76% of the children in rural and urban areas contracted the disease while 95-100% showed immunity at adolescence (13-17 yrs) in both areas.

616.915-07(914)
Rubella — Diagnosis.

93. THE SERODIAGNOSIS OF RUBELLA IN THE PHILIPPINES BASED ON HEMAGGLUTINATION-INHIBITION DETERMINATIONS IN RURAL AND URBAN POPULATIONS. Fe del Mundo (Institute of Maternal and Child Health, Quezon City). *Philippine Journal of Pediatrics,* Aug. 1973, v.22, no.4, p.105-112. graphs, tables. 16 refs.

Results of the study conducted among 723 individuals of both sexes showed that 387 children in the 0-9 yr group constitute the most extensive rubella antibody surveys. It was found positive in all the age groups with an incidence of 6.2% in the 0-4-yr-old group and 12.6% among urban children at the same age. Seropositive titers steadily increased to a peak of 78.9% in the 20-29-yr-old group and 12.8-76.6% in the rural and urban subjects, respectively. Of the 241 women in the child-bearing age, 62 were devoid of rubella antibody in both rural and urban populations.

616.934-053.2(=914)
Dehydration.

94. TYPES OF DEHYDRATION FOLLOWING DIARRHEA IN FILIPINO CHILDREN: CLINICAL AND LABORATORY CORRELATION. Domiciana Dauis-Lawas, Ireneo Lawas and Ramon Arcadio. *Philippine Journal of Pediatrics,* Oct. 1973, v.22, no.5, p.157-171. tables. 22 refs.

A total of 104 cases of diarrhea with dehydration in Filipino children were classified using clinical evaluation, serum sodium determination and osmolarity determination. The most common types of dehydration encountered were isotonic (81.7%) and hypotonic (17.3%), whereas hypertonic dehydration was rarely encountered. The type of dehydration established by sodium determinations tallied with that established by osmolarity determinations. The type suggested by clinical features was not confirmed by laboratory results in 20% of the cases.

616.995:615.7
Parasitic diseases — Drug therapy.

95. RECENT ADVANCES IN THE TREATMENT OF PARASITIC INFECTIONS. Benjamin D. Cabrera (Institute of Public Health, University of the Philippines, Manila). *Philippine Journal of Pediatrics,* Oct. 1973, v.22, no.5, p.172-177. 31 refs.

The literature on anthelmintic drugs is reviewed. Experimental designs used in the evaluation of anthelmintics, the number of subjects, control groups, use of placebo and reported cure rates were taken into account in the selection of the most effective or the drug of choice for each parasitic infection. Anthelmintic drug combinations were prepared for simultaneous treatment of multiple intestinal parasitism. Parasitic infections may require, in addition to the use of specific chemotherapeutic agents, both medical as well as surgical procedures. Treatments of malaria and amebiasis in particular are presented.

616.995:615.73
Trichuriasis — Drug therapy.

96. THE USE OF MEBENDAZOLE (ANTIOX^{R}) FOR THE TREATMENT OF TRICHURIASIS WITH RECTAL PROLAPSE. Pedro P. Chanco, Jr., Remedios Goquiolay-Arellano and Myrna R. Atienza (UST Hospital, Manila). *Philippine Journal of Pediatrics,* April 1974, v.23, no.2, p.43-53. tables. 56 refs.

Twenty-three infected children ranging in age from 0 to 7 yrs were given 100 mgm of microcrystalline Mebendazole (Antiox^{R}) twice a day for 3 consecutive days regardless of age and weight. The 23 cases responded favorably, clinically and parasitologically in 1-3 courses of treatment. Only one case did not respond due to acute amebiasis which, however, decreased the egg count from over 50/slide to 3/slide. The drug was found to be effective in 95.65% by direct fecal smear and acid-ether evaluation on the first post-treatment stool examination and 95.24% efficient on the second post-treatment stool examination using both techniques

616.995-085(914)
Taeniasis — Drug therapy.

97. THE TREATMENT OF TAENIASIS SAGINATA WITH BITHIONOL (BITIN) IN JARO, LEYTE. Benjamin D. Cabrera (Institute of Public Health, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, Oct.-Dec. 1973, v.9, no.4, p.139-143. tables, illus. 9 refs.

Bithionol tried in 40 cases of *Taeniasis saginata* detected during the course of a parasitic survey showed a cure rate of 95-100%. 14 cases expelled complete strobila while the remaining cases expelled incomplete worms. On post-treatment follow-up from 3 to 6 mo., 2 cases gave histories of passing tapeworm segments and had taenia ova in their stools. No untoward drug reaction was experienced by the treated cases.

616.995.1(914)
Filariasis.

98. HUMAN FILARIASIS IN THE PHILIPPINES. Benjamin D. Cabrera and Primo V. Arambulo, III (Institute of Public Health, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, Oct.-Dec. 1973, v.9, no.4, p.160-173. map, table. 45 refs.

The various epidemiologic aspects of human filariasis including transmission risks of exposure, zoonotic implications and the theories on its introduction and spread in the Philippines are reviewed. Filariasis is caused by periodic *Wuchereria bancrofti* and by nocturnally sub-periodic *Brugia malayi* with principal vectors *Aedes* (Finlaya) *poecilus* and *Anopheles minimus flavirostris* for the former and *Mansonia bonneae* and *M. uniformis* for the latter. The incidence in endemic areas varies from 1.9 to 45% for *W. bancrofti,* 0.46 to 64% for *B. malayi* and 0.02 to 3.4% for both species. The symptomatology, pathology, diagnosis, treatment with Hetrazan and control measures are discussed.

616.995.122(914)
Trematoda. Paragonimus —
Isolation & purification

99. ENDEMICITY OF PARAGONIMUS SIAMENSIS MIYAZAKI AND WYKOFF 1965, THE SECOND SPECIES OF LUNG FLUKE FOUND IN THE REPUBLIC OF THE PHILIPPINES. Benjamin D. Cabrera and Suvajra Vajrasthira. *Journal of the Philippine Medical Association,* Aug. 1973, v.49, no.8, p.385-398. tables, illus. 15 refs.

Results of the survey among mammals from the 2 barrios in Jaro (Leyte) revealed the presence of *Paragonimus* eggs in stools of 8 out of 21 cats and one out of 29 dogs. Of the 123 flukes recovered from cats, 93% were *P. westermani* and only 7% were *P. siamensis* Miyasaki and Wykoff 1965. This makes the Philippines the second country where *P. siamensis* is present and also makes *P. siamensis* as the second species of lung fluke in the Philippines, the first being *P. westermani*. Wild rats as well as cats and dogs in areas endemic for Paragonimiasis in the Philippines were found as reservoirs of infection thereby making all control measures difficult.

617.54
Thoracic diseases — Surgery.
Lymph nodes — Pathology.

100. GIANT INTRATHORACIC LYMPH NODE: A CASE REPORT WITH A 12 YEAR FOLLOW-UP. Enrique M. Garcia, Rafael Garcia, Jr., Rogelio Teotico, Jr., Rafael Altamirano and Faustino Sunico. *Chest Diseases,* Dec. 1973; v.8, no.5, p.19-23. illus. 11 refs.

A case of a 24-yr-old female with a right hilar asymptomatic mass is reported. This is the 21st case report which seems to fit Castleman's diagnosis of localized mediastinal lymph node hyperplasia. A possibility of tuberculous etiology is mentioned but is negated by the clear lungs 12 yrs after surgery.

OPHTHALMOLOGY

617.713:616-001
Cornea — Injuries.

101. FUNGUS INFECTION OF THE CORNEA: A REVIEW OF 43 CASES. Salvador R. Salceda (Philippine Eye Research Institute, University of the Philippines, Manila). *Journal of the Philippine Medical Association,* Oct. 1973, v.49, no.10, p.455-462. graph, tables, illus. 18 refs.

Studies revealed that 40 of the 43 proven cases of fungal infection were followed by ocular trauma and one, by lamellar keratoplasty. Cultures performed on the 42 cases showed growth in 37 and none in 5. The most common fungi isolated were *Fusarium* and *Aspergillus* followed by *Mycelia sterila, Hormodendrum, Curvulatia, Phialophora verrucosa, Cephalosporium, Paecilomyces* and *Candida krusei*. Clinical features that suggested the nature of the infection were: 1) history of previous ocular trauma due to some vegetable matter; 2) severity of the pain on the affected eye; 3) non-response to prolonged antibacterial therapy; 4) preponderance of hard ulcers indicating minimal tissue necrosis; and 5) hypopyon, when present, tended to be stringy and well-adherent to the back surface of the cornea. Medical therapy was not very encouraging. Although the drugs are effective *in vitro* against a wide variety of fungal cultures, they poorly penetrate the cornea. Surgical excision of the lesion removes a bulk of the infecting organisms and when used in conjunction with the antimycotic drugs can help control infection.

617.713:616-002.4-085
Corneal ulcer — Drug therapy.

102. ANTI-COLLAGENASIS IN CORNEAL NECROSIS. Salvador R. Salceda (Philippine Eye Research Institute, University of the Philippines, Manila). *Journal of the Philippine Medical Association,* Oct. 1973, v.49, no.10, p.463-470. table, illus. 29 refs.

The topical administration of 0.2 M solution of either cystein or EDTA every 2 hrs in controlling corneal ulceration associated with alkali burns and other inflammatory conditions gave encouraging results. There are evidences that this is due partly, if not wholly, to the inactivation of the enzyme, thus preventing its action on the corneal collagen.

617.741
Glaucoma.

103. THE FELLOW EYE IN PRIMARY ANGLE CLOSURE GLAUCOMA. Mario Aquino (UP-PGH Medical Center, Manila). *Journal of the Philippine Medical Association*, Oct. 1973, v.49, no.10, p.471-476. tables. 5 refs.

Twenty-six cases of angle closure glaucoma occurring in one eye followed by a similar attack on the fellow eye at one time or another are presented. The development of angle closure glaucoma is either acute, sub-acute or chronic. Fellow eyes that received medication had glaucomatous attack from 3 wks to 30 yrs following the episode in the first, while those that were untreated suffered attack 7 hrs to 9 yrs from the first episode. The use of medication seems to have mainly prolonged the course of the glaucomatous episode and therefore, denied of a permanent cure via an early iridectomy.

617.75:616-089
Cataract extraction.

104. COMPREHENSIVE SURVEY OF 374 PATIENTS (463 EYES) UNDERGOING CATARACT EXTRACTION (WITH EMPHASIS ON THE INFLUENCE OF BILATERALITY OF SURGERY). Ulysses M. Carbajal. *Journal of the Philippine Medical Association*, July 1973, v.49, no.7, p.363-368. tables. 15 refs.

A survey among 374 selected patients, aged 61-70 yrs, of which 285 underwent cataract surgery on one eye only, 47 bilateral cataract surgery in one sitting and 42 in different sittings, revealed that there are no differences in the incidence of complications after cataract extraction. The apparent slight discrepancies are due more to the pre-operative inequality of patient's reaction and variability of situations than to the unilaterality and bilaterality of surgery itself. Bilateral cataract surgery may be done safely in one sitting if the proper presurgical and postoperative care are strictly followed.

GYNECOLOGY. OBSTETRICS

618.1:116-007
Genitalia, Female — Abnormalities.

105. CONGENITAL ANOMALIES OF THE FEMALE GENITAL SYSTEM AT THE VETERANS MEMORIAL HOSPITAL. Luisa M. Lascano (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal*, May 1974, v.5, no.1, p.47-54. tables. 12 refs.

The survey was conducted for a period of 13 yrs (1961-1974). Of the 16,483 patients admitted, 17 cases had congenital anomalies, such as imperforate hymen, congenital absence of vagina and uterus, absent cervix and uterus, bicornuate and arcuate uterus, hypoplastic uterus with endometriosis, septate vagina occurring singly or in combination with septate uterus, double cervix and double uterus. The most common clinical features are primary amenorrhea, severe hypogastric and lumbosacral pains, inability to urinate and defecate, primary sterility, hypogastric mass and bulging hymen. The management consisted of incision and drainage, excision of septum and plastic construction of vagina using the Thiersch graft from the obturator muscle. — Author's Abstract

618.1:616-007
Genitalia, Female — Abnormalities.
Endometriosis.

106. GENITAL AGENESIS WITH ENDOMETRIOSIS. A CASE REPORT. Luisa M. Lascano (Veterans Memorial Hospital, Quezon City). *Veterans Memorial Hospital Journal*, Nov. 1973, v.4, no.2, p.87-91. 6 refs.

A case of genital dysgenesia with endometriosis where the main clinical manifestations are primary amenorrhea, severe lumbo-sacral and hypogastric pains occurring regularly every mo. for 8 yrs associated with heaviness at the perineum and dysuria, is reported. Examination showed a normal, intact hymen, and an absent vagina, without any evidence of a hematometria. Rectal examinations revealed a small mass in the left which gave the impression of uterus with a tiny suspicious cervix. Management of the case included a total hysterectomy and bilateral salpingo-oophorectomy, and excision of the cystic mass between the bladder and the lower portion of the uterus.

618.3:616.12 616.12-02
Pregnancy complications, Cardiovascular.
Myocardial diseases, Secondary — Etiology.

107. POSTPARTUM CARDIOMYOPATHY: REPORT OF TWO CASES AND A REVIEW OF LITERATURE. Elisea N. Singson and Dante B. Morales. *Philippine Journal of Cardiology,* Jan.-March 1974, v.2, no.1, p.21-27. tables. illus. 15 refs.

Two cases of postpartum cardiomyopathy seen for the first time in the Philippines are reported. The cases were identical to those found in the world literature. A heart muscle disease, cardiomyopathy, is characterized by a progressive cardiac failure accompanied by dyspnea, edema, cardiac enlargement, gallop rhythm and precordial pain. It usually occurs on the later part of pregnancy or during the first week postpartum. Poor response to the usual therapy for heart failure is observed and mortality rate goes as high as 60%. Awareness of the disease is suggested for early diagnosis and treatment.

VETERINARY MEDICINE

619:615.777:616.995:636.39
Goats — Diseases and pests — Therapeutics.
Phenothiazine.

108. FIELD STUDY OF PURIFIED MICROFINE PHENOTHIAZINE WITH LEAD ARSENATE IN NATIVE GOATS. Mario S. Tongson and Maximino M. Montenegro (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June-Dec. 1974, v.13, nos.1-2, p.170-182. tables. 42 refs.

A field trial was conducted to evaluate the anthelmintic efficiency of a commercial preparation of purified microfine Phenothiazine with lead arsenate based on fecal egg counts on 16 native goats with ages ranging from 3 mo. to 3 yrs. The trial was conducted over a period of 7 days using dosages of 30 cc for kids of 25-60 lbs and 60 cc for adult goats over 60 lbs. All of the goats used in the experiment had a naturally occurring infection of strongyles, mainly *Trichostrongylus* and *Oesophagostomum* infections. Results showed that the drug is generally effective against strongyles and tapeworms. The drug was also safely used on both pregnant and debilitated animals in the experiment. — Authors' Abstract

619:616-003.6:591.433:636.2(914)
Stomach — Foreign bodies — Cattle.

109. A PRELIMINARY STUDY ON THE INCIDENCE OF FOREIGN BODIES IN THE STOMACH OF CATTLE IN THE PHILIPPINES. Carmelo V. Crisologo and Salvador H. Escudero, III (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June-Dec. 1973, v.12, nos.1-2, p.84-93. illus. 16 refs.

A total of 691 stomachs from native and Holstein-Freisian cattle, slaughtered at a commercial abattoir with ages ranging from 3 to 21 yrs, were examined. 59 stomachs were found positive of foreign bodies, such as abaca ropes, nails, stones, hairballs, bolts, concrements and other similar things, with an incidence of 4.1% and 4.4% in the rumen and reticulum, respectively. None was found in the emasum and abomasum.

619:616-089.5:636.7
Veterinary anesthesia — Dogs.

110. A PRELIMINARY STUDY ON THE PREANESTHETIC VALUE OF ROMPUN GIVEN INTRAVENOUSLY IN DOGS PRIOR TO PENTOBARBITAL SODIUM ANESTHESIA. Alfredo Q. Lacuata and Pedrito M. Subang (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine*

Journal of Veterinary Medicine, June-Dec. 1973, v.12, nos.1-2, p.143-154. tables. 22 refs.

Results showed that Rompun given intravenously at a dose of 0.02 ml/kg body weight induced hypnosis and facilitated handling of animals and the induction of general anesthesia. It significantly reduced the amount of pentobarbital needed to produce surgical anesthesia by an average of 42% of the calculated dose, and the pulse rate with an average reduction of 42.9%. There was an average decrease of 59.7% in the respiratory rate but with an increase in the temp. from 0.1° to 0.3°C. The recovery period with this Rompun and pentobarbital combination was reduced to 2-5 hrs. No untoward reaction was observed upon the administration of the 2 drugs.

619:616.993.19:615.778:636.5 636.5.089
Coccidiostats. Eimeria tenella.

111. EVALUATION OF VARIOUS COCCIDIOSTATS AGAINST EIMERIA TENELLA UNDER PHILIPPINE CONDITIONS. Mauro F. Manuel (College of Veterinary Medicine, University of the Philippines, Quezon City). *Animal Husbandry and Agricultural Journal,* Sept. 1973, v.8, no.9, p.16, 18-20. tables.

Results of the experiment showed that Coyden, Bonaid and Cycostat effectively prevented cecal damage in broiler chicks due to *E. tenella* given either before or after ingestion of infective cocysts, followed by Amprol plus and Zoamix. NF 180, Viamit 10, Aklomix and Norastat showed little or no anticoccidial value against cecal coccidiosis.

619:636.7:616-089
Dogs — Surgery.

112. FIBULECTOMY IN DOGS. Ceferino P. Maala and Eduardo M. Celo (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June-Dec. 1973, v.12, nos.1-2, p.94-99. illus. 4 refs.

Unilateral ostectomy of the fibula particularly on the posterior limbs was performed on each of the 10 apparently healthy dogs. No difficulties were encountered during the operation. Hemorrhage occurred due to unavoidable cutting of blood vessels supplying the muscles surrounding the fibula. All signs of limping, lameness and depression disappeared a wk after the operation. No evidence of abnormality was manifested by each animal.

619:636.7:616-089
Elbow — Surgery — Dogs.

113. A SURGICAL TECHNIQUE FOR THE CORRECTION OF ELBOW DISLOCATION IN DOGS. Enrique T. Carlos (Dog and Cat Hospital, Makati, Rizal). *Philippine Journal of Veterinary Medicine,* June-Dec. 1973, v.12, nos.1-2, p.155-163. illus. 1 ref.

Lateral elbow dislocation accompanied by contracted muscles and tendons, believed to be congenital in nature in both 6-wk-old miniature Poodle and male Dalmatian, is presented. A Thomas splint was attached to the affected leg of the Dalmatian which gradually stretched the contracted muscles and tendons to as nearly as its normal length. In the case of the Poodle, a 3/16-in.dia. Kirschner pin was inserted in the caudolateral border of the trochlea directed towards the cranial medial boarder of the epicondyle. Legs after surgery regained their normal sizes. A month later, both dogs were already walking normally except for a very slight limp which, however, disappeared 3 mo. later. The pre-surgical procedure, surgical technique and post-surgical treatment are briefly discussed.

619:636.7:616-089
Tendons — Surgery — Dogs.

114. SURGICAL PROCEDURE AND OBSERVATIONS IN THE EXCISION OF THE DISTAL TENDON OF INSERTION OF THE PECTINEUS MUSCLE IN THE DOG. Gary M. Brooks and Alfredo Q. Lacuata (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June-Dec. 1973, v.12, nos.1-2, p.100-122. illus. 14 refs.

The pectineus excision at the tendon of insertion with removal of a portion of this tendon performed on 6 non-dysplastic dogs and one female dysplastic German Shepherd was found successful in relieving some of the clinical signs associated with canine hip dysplasia. Limping, abduction and extension of the operated limbs commonly occurred in all cases which lasted for a variable period of 2-4 days in the experimental dogs and persisted for a wk in the dysplastic dog. The advantages of performing the operation at the tendon of origin and/or myectomy involving the muscle belly may be of value in treating the dysplastic dog.

ENGINEERING

622.86
Mines and mining — Accident prevention.
Safety devices and measures.

115. APPLIED SAFETY IN VENTILATION AND DUST CONTROL AT ATLAS CONSOLIDATED MINING & DEV. CORPORATION. Romulo F. Villamor. *Philippine Mining Record,* Oct. 1973, v.7, no.11, p.16-21. illus.

The applied safety in ventilation and dust control in the underground mine operation is described. It deals particularly on the distribution and control of airflow at the grizzly level and the reduction of airborne dust while filling up transfer raise with ore from the draw point. It also involves control measures and ventilation system during wrecking of pillars on blocks being undercut. In undercutting ore block in heavy ground, one or 2 access draw raises are maintained and working place can be made safe in 30 min from fumes produced by blasting of pillars. For safety, gas tests are done to detect presence of noxious gases, particularly CO at the farthest point of the undercut drifts as part of the standard safety practices. — Author's Abstract

622.86
Mines and mining — Accident prevention.
Safety devices and measures.

116. SAFETY HAZARDS IN ATLAS BLOCK-CAVING MINING AND HOW THEY ARE HANDLED. Orlando O. Arreza (Atlas Consolidated Mining & Development Corp., Toledo City). *Philippine Mining Record,* July 1973, v.7, no.8, p.21-22, 24-28. illus.

The various block-caving hazards and their control measures are discussed, namely: 1) handling, storage and use of explosives; 2) grizzly-line works; 3) transfer raise chute tapping; 4) train and locomotive operations; 5) heavy ground in caving blocks; 6) dust and heat; 7) mine fires; and 8) operations of various mechanical equipment and tools. The solutions, however, are not to be considered final and foolproof, but could still be viewed as a positive approach to a safety problem. The ideas, though may not work in other places due to many variables involved, can be used as a pattern in searching for solutions to safety problems in block-caving operations.

628.5 613.644
Noise.

117. NOISE IN MODERN SOCIETY. Miguel Montaner and Manuel Samson (UST Research Center, Manila). *Acta Manilana,* ser.A, Nov. 1973, no.11(18), p.41-65. graphs, tables, illus. 6 refs.

Promulgated anti-noise ordinances years ago were not effective because they did not provide a clear definition of noise and standard levels that are considered annoying. The provisions which should be included in these ordinances are discussed, namely: 1) noise standards; 2) control of noise in public buildings; and 3) assessment and abatement of noise in factories. Road traffic was found to be the most widespread cause of intrusive noise in public buildings. Surveys have also shown that the main determinant of noise level is the volume of traffic. The ambient noise in public buildings, schools and hospitals surveyed is negligible where street noise is predominant. In city ordinances, the only adequate measure adaptable for the control and abatement of noise in public buildings and factories is to indicate noise criteria that are attainable and to enforce criteria in factories and public buildings are given.

AGRICULTURE AND FORESTRY

631.5:631.552:582.998
Sunflowers — Experiments, Field.
Sunflowers — Yield.

118. SUNFLOWERS CAN BE RAISED IN OUR COUNTRY. Baby P. Ramilo (Bureau of Plant Industry, Manila). *Animal Husbandry and Agricultural Journal,* Aug. 1973, v.8, no.8, p.19.

The 4 known varieties grown in the country are Peredovik, HO-1, Armanerio and Kranodarets. Peredovik matures within 85-90 days depending upon the climate while the other 2 varieties mature from 90 to 120 days. Sunflower thrives best in well drained loam or clay loam and fairly heavy alluvial soils. It requires well-defined wet and dry seasons and an optimum condition of 77°-32°F. It is planted directly in the fields from Oct. to Nov. or at the later part of the rainy season. Irrigation is done after 3-4 wks of emergence and just before the plants flower. 60-100 kg N and 40-45 kg/ha., each of P and K must be applied. Harvest is expected 90-120 days after planting. Sunflower seeds yield oil as much as 1000 kg/ha. Different parts of sunflower are reported to treat several diseases, such as bronchial, laryngeal and pulmonary infections like coughs and colds, dysentery, asthma, diabetes and intermittent fever. Several hints on sunflower growing, from land preparation to harvesting, are given.

631.82
Fertilizers.

119. KNOWING MORE ABOUT FERTILIZERS. V. Iswaran (Dr. Manuel L. Roxas Memorial Experiment Station, Bureau of Plant Industry, Lipa City). *Animal Husbandry and Agricultural Journal,* Nov. 1973, v.8, no.11, p.16-17.

The most important plant feeds are N, P and K. N makes crops grow faster, increases yield, makes leaves crisp and tender and gives dark green color. It is contained in ammonium sulphate, ammonium nitrate, urea, mixed fertilizer, farmyard manure, compost and oilcakes, and green manure crops. P is needed for growth and reproduction, for rapid development of roots with corresponding bigger top growth and resulting to plumper grains and higher yields. It is contained in fertilizer materials as phosphoric acid (P_2O_5) in superphosphate, triple superphosphate, dicalcium phosphate, mixed fertilizer, farmyard manure, compost, bone meal and fish meal. K makes the stems stiff and strong, fruit plump, and the whole plant resistant to disease, resulting in increased yield. It is contained as potash (K_2O) in muriate of potash, sulfate of potash, mixed fertilizer wood ash, farmyard manure and compost. Fertilizers should be balanced to produce higher yield. It should be applied further ahead of seeding time without loss of the plant food. Plants need other mineral elements but in small quantities.

632.954
Weeds — Control.

120. CONTROL THAT POISON WEED. *Animal Husbandry and Agricultural Journal,* Oct. 1973, v.8, no.10, p.29.

The poisonous weed overruning pasturelands, known as "hagonoy" (*Chromolaena odorata*), can be controlled effectively by: 1) allowing other grasses to grow vigorously thereby covering the "hagonoy" seedlings; 2) burning the pasture to kill the weed seedlings; and 3) spraying with Tordon 101 to control the regrowth of the weed. The cutting and burning of the mature stands of the weed should be done during the later part of the dry season. Suitable fast growing species should be planted in the area to prevent reinvasion by the weed.

633.17:631.5
Sorghum — Cultivation.

121. SORGHUM PRODUCTION. Andres T. Peros and Faustino S. Mensalvas (Bureau of Animal Industry, Manila). *BAI Recorder,* Aug.-Sept. 1973, v.33, no.2, p.4-9.

The 4 groups of sorghum classified as grain, sweet, grass and broomcorn are described. Being a drought resistant crop, it can be grown successfully in most areas of limited rainfall, in all types of soil with pH value between 5.8 and 6.0 and preferably in deep fertile sandy loam at a temp. of about 80°F. If grown for forage, the sown or broadcast method at the rate of 112-150 lb/seed/ha. is recommended. If grown for grain, surface planting in rows is best suited on lands of moderate rainfall while furrow planting gives better results in dry areas both at the rate of 7.5-10 lb/ha., with seed spacing of 2-4" in the row and 30-40" between rows. Fertilizers known to be good for corn are equally beneficial to sorghum plants. Sorghum can be utilized as staple cereal for human food, brooms, brushes and for forage in the form of soilage, silage, hay, fodder and pasture. However, it contains prussic acid which is dangerous to livestock. The diseases and pests that attack the crop are given.

633.17:632.3(914)
Sorghum — Diseases and pests.

122. NOTE: RED LEAF DISEASE OF GRAIN SORGHUMS IN THE PHILIPPINES. Avelina Q. Paulsen and Asuncion Karganilla. *Philippine Agriculturist,* Oct.-Nov. 1973, v.57, nos.5-6, p.264-268. illus. 10 refs.

Data showed that the red striping disease observed in Los Baños (Laguna) and Musuan (Bukidnon) was due in part to a sap- and aphid-transmitted virus. Furthermore, this virus could be related to sugar cane mosaic virus or maize dwarf mosaic virus but additional tests will be necessary to determine the exact identity of the virus. The low field incidence at the time may be due to a low and general inactive, probably because of frequent rains and cooler temp. which prevented rapid build-up and active migration. — Authors' Abstract

633.17:632.4
Sorghum — Diseases and pests.
Helminthosporium sorghicola.

123. HOST-PARASITE RELATIONSHIP IN HELMINTHOSPORIUM LEAF SPOT OF SORGHUM. F. A. Elazegui and O. R. Exconde (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Oct.-Nov. 1973, v.57, nos.5-6, p.210-218. illus.

Helminthosporium sorghicola germinated on and penetrated directly the sorghum leaves 4 and 12 hrs, respectively after inoculation. The pathogen either formed appressorium or penetrated directly through a germ tube. The hyphae were intracellularly located in the mesophyll region. The bundle sheath protected the vascular bundles from invasion, thus preventing the lateral spread of the fungus except at severe infection. The typical symptoms were produced 3-4 days after inoculation. Spores were also produced about 6 days after inoculation. — Authors' Abstract

633.17:632.4
Sorghum — Diseases and pests.
Helminthosporium sorghicola.

124. IDENTITY OF THE SPECIES OF HELMINTHOSPORIUM CAUSING LEAF SPOT OF SORGHUM. F. A. Elazegui and O. R. Exconde (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Oct.-Nov. 1973, v.57, nos.5-6, p.219-231. tables, illus. 14 refs.

Results of the study conducted at the UPCA Central Experiment Station, College and vicinity showed that *H. sorghicola* Lef. and She was the causal organism of leaf spot of sorghum based on the morphology of conidia and conidiophores, host and type of lesion encountered. Symptoms of the disease consist of elliptical to rectangular and reddish to purplish spots depending upon the variety of sorghum. The close similarity in the cultural, morphological and pathogenic characters of the 11 isolates suggests that they belong to a single species. In cultural and morphological characters, the type cultures of *H. turcicum, H. sorghicola* and *H. rostratum* differed from each other; *H. sorghicola* type culture and the local isolate were found identical.

633.18:631.52
Rice — Breeding. Rice — Varieties.

125. INDUCED MUTANTS FROM BPI-121 AND B-E-3. Esteban C. Cada, Aguinaldo I.

Bueno and Hilario C. dela Cruz, Jr., Quezon City, Philippine Atomic Energy Commission, 1973, 10p. 5*l*. tables. Mimeographed.

Five rice varieties in the induced mutation breeding program of the Bureau of Plant Industry (Manila), namely B-E-3, BPI-121$_{60}$ Elon-elon, Raminad Str.3 and Wagwag were treated with different doses of Co^{60} gamma rays and mixed radiation. This resulted in the selection of promising non-seasonal strains of B-E-3 and BPI-121.

BPI-121-407 was selected from BPI-121 and was approved by the Philippine Seed Board. Its desirable characteristics are high yield, shortness of straw, resistance to lodging, earliness of maturity, insensitivity to day-length, good milling and eating qualities.

633.18:631.552:632.3
Rice — Yield. Rice bacterial leaf blight.

126. YIELD LOSSES DUE TO BACTERIAL LEAF BLIGHT OF RICE. O. R. Exconde, O. S. Opina and K. Phanomsawarn (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist*, Aug.-Sept. 1973, v.57, nos. 3-4, p.128-140. graphs, tables. 14 refs.

The average yield losses in BPI-76 were 21.5% for the 1968 wet season and 7.2% for the 1969 dry season. An average decrease of 8.6% and 2.7% for each unit increase in disease intensity was obtained in the wet and dry seasons, respectively. In PB 76-13 variety, the average loss was 9.5% during the wet and 1.8% during the dry seasons. No significant losses in yield were obtained in C4-143. In all 3 varieties, no significant interaction was obtained between time of inoculation and disease intensity.

Results of the experiments showed that significant yield losses due to bacterial leaf blight were obtained from both C4-63(G) and BPI-76 at different levels of disease intensities and cropping seasons when inoculated at booting stage. — Authors' Abstract

633.18:632.954
Herbicides — Effect on plants.

127. PHYSIOLOGICAL RESPONSES OF RICE TO TCE-STYRENE. Kil-Ung Kim (International Rice Research Institute, Los Baños, Laguna) and Beatriz L. Mercado (College of Agriculture, UPLB, College, Laguna). *Philippine Journal of Science*, June 1974, v.103, no.2, p.81-89. plates, tables.

The effects of TCE-Styrene on germination and subsequent growth, protein, amino acid, RNA and starch contents together with amylase activity in rice were studied.

Rice was very susceptible to TCE-styrene at the very early stages of development but the susceptibility decreased as the seedling became older. The pronounced phytotoxic symptom was the failure of the primary leaf to break through the coleoptile. In such cases, the primary leaf became transparent and later brownish as contact with the herbicide was prolonged.

No considerable changes in the contents of protein, RNA and amino acids were obtained. A slightly slower starch degradation was observed in the grain of the treated seedling which was not accompanied by an inhibition of α-amylase activity. Deseeded seedlings grown in solid white's medium which were likewise inhibited in growth by TCE-styrene suggest that the herbicide affects processes taking place in the developing plant rather than in the grain. — Authors' Abstract

633.3:535.21:636.085
535.21:633.3:636.085
Plants, Effect of radiation on.
Mimosine.

128. A REPORT ON THE EFFECT OF GAMMA IRRADIATION ON THE MIMOSINE CONTENT OF IPIL-IPIL LEAF MEAL. A. L. Alejandrino, C. Goze and B. Balboa (Philippine Atomic Energy Commission, Quezon City). *Proceedings of the Eight Annual Convention of the Philippine Association of Food Technologists*, Nov. 27-28, 1973, p.87-95. table. 30 refs.

Results showed a greater loss of mimosine in ipil-ipil (*Leucaena leucocephala* Lam. de Wit) leaf meal when irradiated at a higher dose rate of 543 Krads/hr using the 5400 Ci y-Cell than at a lower dose rate of 63 Krads/hr using the 12,000 Ci Source, to give both a total gamma dose of 5 Mrads. Mimosine losses of 16.2% and 19% in the leaf meal were observed at 4 and 4.5 Mrads, respectively. At 4.5 Mrads, protein content was found to be only slightly affected. A comparison of the results obtained with radiolysis of mimosine in aqueous systems showed the following order of radiosensitivity: mimosine solution (1 mg/ml in water) > mimosine in 0.1 N HCl (1 mg/ml) > mimosine in dried leaf meal.

Heating the leaf meal at 85°C for 3 hrs before irradiation at total doses of 4 and 4.5 Mrads did not result in greater mimosine loss than that obtained by irradiation alone.

633.61:631.543:631.552
Sugar cane — Experiments, Field.
Sugar cane — Yield.

129. PRELIMINARY RESULT ON THE EXPERIMENT ON SQUARE PLANTING. Nelia E. Velasco (Philippine Sugar Institute, Calamba, Laguna). *Sugarcane Farmers Bulletin,* Jan.-Feb. 1974, v.8, no.4, p.2, 5. tables, illus.

All canes planted in squares outyielded those planted in the control both in tons cane and in sugar output. Canes planted at 50 x 50 cm significantly outyielded all treatments in both cane and sugar, except the treatment using 75 x 75 cm where no significant difference was obtained in PS/ha. It was observed that an increasing trend yield is obtained as the canes are planted closer in squares.

633.61:632.954 632.954:633.61
Sugar cane — Weeds — Chemical control.

130. COMPARATIVE EFFICIENCY OF DIFFERENT WEEDICIDES FOR SUGAR CANE UNDER CANLUBANG CONDITION. Alejandro R. Apacible. *Sugarland,* Jan. 1974, v.11, no.1, p.8-10, 48, 50.

The assessment of the effectivity of the weedicides on CO-330 sugar cane variety was made 12 days after spraying, based on the weight density, and during harvesting season based on sugar production. Results showed that Karmex + Surfactant WK was the most effective weedicide and gave the highest sugar yield among the treatments, followed by Gramoxone + Agral 90 (Drible Bar), Kuron, Telvar + Surfactant WK, Penatrol Dry Na Salt and Desaprim 50 W. All these weedicides were used as early post-emergent spray when the weeds were about 1-6" tall.

633.73:581.14 633.73:631.531
Coffee — Seeds.
Germination — Seedling emergence.

131. GERMINATION AND ITS INHIBITION IN COFFEE. Jose R. Velasco (National Institute of Science & Technology, Manila) and Jorge Gutierrez (Universidad de la Habana, Cuba). *Philippine Journal of Science,* March 1974, v.103, no.1, p.1-11. tables. 8 refs.

Results of the experiments showed that the initial germination of fresh seeds without seed coat was obtained about one mo. after planting while seeds in fresh whole fruits germinated 20 days later. Also, the latter germinated more slowly (5 vs. 10%/da). Except the seeds without seed coat, the dried material germinated later and slower than their fresh counterpart. Much of the dried berries and seeds rotted.

A germination inhibitor was extracted with 80% methanol from the seed coat of coffee. When partitioned in ethyl acetate-water and chromatographed on filter paper in system of isopropanol-ammonia-water (10:1:1), its Rf-value was 0.85-0.90. It exhibited properties which differed from those established for abscissic acid. — Authors' Abstract

633.822:581.035.3(914)
Mint.

132. STUDIES ON THE PHYSIOLOGY OF PHILIPPINE MINT (MENTHA CORDIFOLIA OPIZ). II. EFFECT OF TWO DIFFERENT LIGHT INTENSITIES ON THE VEGETATIVE GROWTH AND OIL YIELD. Magdalena Canto-

ria and Ma. Vicenta T. Cuevas-Gacutan (University of the Phliippines, Quezon City). *Philippine Journal of Science,* March 1974, v.103, no.1, p.13-19. tables. 22 refs.

On the basis of dry weight production, results showed that growth under normal greenhouse light intensity (25% of that outdoors) is better than under the reduced light intensity (2% of that outdoors). It was also observed that there is no distinct effect on the number of oil glands/unit area and on the size of the oil glands. The plant did not develop flowers after 35 days of treatment. Prolonged exposure to reduced light intensity resulted in a change in leaf shape and in etiolation.

633.822:581.1(914)
Mint.

133. STUDIES ON THE PHYSIOLOGY OF PHILIPPINE MINT (MENTHA CORDIFOLIA OPIZ). III. VARIATION IN OIL YIELD. Magdalena Cantoria (University of the Philippines, Quezon City). *Philippine Journal of Science,* March 1974, v.103, no.1, p.67-73. graph, plates, table. 3 refs.

A study on the monthly fluctuation of oil yield of yerba buena (*Mentha cordifolia* Opiz) extending over a period of 26 mo. is reported. The mean oil yield is highest during the months of March-July reaching a peak in June. Heavy rains during July-Sept. have a significant adverse effect on the growth and oil yield of the plants. Young tops yield more oil than older plants. Also, flowering tops yield more oil than vegetative tops. Gas chromatography of the oil confirms the presence of piperitenone oxide as the principal component and reveals that oil from field-grown plants contains more compounds than those from greenhouse-grown plants.

634/635:631.56:632.952
Fruit — Diseases and pests — Therapeutics.
Fruit, Effect of chemicals on.

134. A NOTE ON THE CONTROL OF POST-HARVEST DISEASE OF FRUITS WITH BENOMYL AND THIABENDAZOLE. N. D. Bondad (Philippine Council for Agricultural Research, Los Baños, Laguna). *Philippine Journal of Science,* March 1974, v.103, no.1, p.21-27. tables. 24 refs.

The water insoluble fungicides were applied as suspensions on naturally infected citrus ('Szinkom'), mango ('Piko'), banana ('Lakatan') and tomato (unknown cv.). It was observed that Benomyl provided a better control of decay in non-degreened citrus fruits than Thiabendazole. Thiabendazole at 200 ppm did not satisfactorily control diplodia stem-end rot of mango. Further development of cushion rot in heavily infected bananas was checked by 500 ppm Thiabendazole in green but not in ripe fruits. In tomatoes, results are not conclusive due to uncertainty of previous handling conditions. Microscopic examination of infected fruits showed that *Phomopsis citri* was the major fungal pathogen in both degreened and nondegreened fruits.

634.0.8:547.98
Tannins.

135. STUDIES ON THE TANNIN EXTRACTS FROM THE BARKS OF SIX HARDWOOD SPECIES. Eusebia L. Mule and Esther V. Gonzales (FORPRIDECOM, College, Laguna). *Forpride Digest,* Sept.-Dec. 1973, v.2, nos.3-4, p.35-39. tables. 5 refs.

The species used in the study utilizing the hide power method were: taluto [*Pterocymbium tinctorium* (Blanco) Merr.]; malabayabas (*Tristania decorticata* Merr.); duhat [*Syzgium cumini* (L.) Skeels]; moluccan sau [*Albizzia falcata* (L.) Back]; black wattle (*Acacia* sp.); and kaatoan bangkal [*Anthocephalus chinensis* (Lank.) Rich. er. Walp]. Based on tannin content alone, results showed that black wattle bark is an economical source of tannins, and a valuable local source of tannin extracts for tannin adhesives due to its high tannin content of 13.87% and Stiasny number of 23.16, respectively. It gives a tannin to non-tannin ratio of more than one and a purity of more than 50% and has high amount of tannin-formaldyhyde precipitate indicating that tannins are predominantly of the catechol or condensed type.

Duhat bark extract was found strongly positive for pyrogallol tannins, and therefore may be considered a possible source of dye. All the other bark extracts showed negative pyrogallol tannins.

634.616:631.82
Fertilizers for coconut.

136. RESPONSE OF COCONUT TO NPK FERTILIZATION AT DAVAO. A. R. Apacible, A. M. R. Mendoza and R. I. Prudente (Philippine Coconut Research Institute, Davao City) and Celestino Barile (Bureau of Soils, Manila). *Philippine Journal of Science*, March-June 1973(1974), v.102, nos.1-2, p.21-30. graph, plates, tables. 7 refs.

Various levels of NPK fertilization were tested on 8-yr-old coconut trees for a period of 5 yrs in an area where the relief ranges from nearly level to undulating. The soil is Tugbok clay with a pH of 6.0, 2.4% organic matter, 48 ppm available P_2O_5 and 300 ppm exchangeable K_2O. Results showed that the fertilized trees gave a yearly increase of 23-55% nut production over the control (unfertilized). The best treatment (0.3 kg N and 1.0 kg K_2O/tree) gave an increase of 32-80% nut production annually commencing on the 2nd yr after the first application. This treatment is recommended for coconut plantations where the agronomic and climatic conditions are similar to the Research Center in Davao City. — Authors' Abstract.

634.772:632.6:595.13
Bananas — Diseases and pests —
Therapeutics. Nematocides.

137. EVALUATION OF THREE NEMATOCIDES FOR THE CONTROL OF MELOIDOGYNE INCOGNITA AFFECTING BANANA. R. G. Davide (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist*, Oct.-Nov. 1973, v.57, nos.5-6, p.187-197. tables, illus. 8 refs.

The effectiveness of Temik 10G, Mocap 10G and Nemagon 20G evaluated as dip and soil incorporation treatments was observed to be dependent on the rate and method of application. Plants in the nematocide-dip treatment using one g/gal had a greater percentage increase in growth than those in the 5 g/gal rate though the gall index was low, whereas plants in the soil incorporation method showed an increase in the percentage of top growth when the rate was increased from one gal to 5 g/8-inch clay pot.

Studies on the duration of dipping banana suckers in the 5 g/gal nematocide suspension revealed that 5 min dipping did not cause any inhibition of plant growth but in 10 and 15 min, top growth, particularly in Nemagon 20G- and Temik 10G-treated plants, had been reduced by more than 50% despite the fact that the nematodes were effectively controlled as shown by the trace to slight galling.

634.774:631.5
Pineapples

138. THE CULTURE OF PINEAPPLE. Rizal A. Gatica. *Greenfields*, v.3, no.2, p.14-16. illus.

Pineapple (*Ananas comosus* — Linn. Merr.) thrives best in well-drained loam to clay-loam soils, supplied with humus and rich in nutrients, with soil pH levels of 4.5-5.5 at temp. ranging from 75° to 85°F. It can also be grown under a wide range of rainfall conditions, from 20 to 90" of annual precipitation. Planting materials used are crowns, slips and suckers. A hectare of land require 30,000 plants with a spacing of 40 x 80 cm and planting depth of 2". About 200 k of P/ha. should be applied once at planting time while about 400 k N/ha., 6-7 times during the entire growth period. The same amount of K/ha. may also be applied to very poor soil. Crown bear fruits in about 2 yrs, slips, 18-21 mo. and suckers, 17 mo. Fruits are harvested when the color of their bases change from green to yellow. Plant diseases, their control measures and methods of harvesting are discussed.

The varieties grown in the Philippine include the Cayenne, Queen and several Spanish varieties.

634.8:631.5
Grapes — Cultivation.

139. THERE'S MONEY IN GROWING GRAPES. *Sugarcane Farmers Bulletin,* March-April 1974, v.8, no.5, p.5-12. tables.

Grapes grow best in warm sunny dry climate and in a wide range of soil types containing no toxic substances, preferably alkaline soils for good quality table fruits. Planting materials used are cuttings 8-10" long with 3-4 buds, obtained from matured canes. Plants may be 3 m between set rows and 2 m between plants in the rows or 3 m x 3 m to facilitate the passage of implements for field operation. Healthy seedlings are transplanted at 1½ mo. old. The following composition of soil mixture used to refill ½ cu. m hole before setting the plants is recommended: ⅓ compost soil or decomposed manure, ⅓ top soil, ⅓ river sand and 100 g of 12-24-12 complete fertilizer. 3 mo. after planting, complete fertilizer at the rate of 60-90 g/plants may be applied, and increased to 250-500 g/plant on the 2nd year and one kg/plant 2 wks before pruning on the 3rd yr and succeeding years. The types of trellis, pests and diseases and their control, cordon and cane pruning and improvement of fruit quality by thinning and hormone treatment are discussed.

635.656:632.4
Beans, Mung — Diseases and pests.
Powdery mildew.

140. OCCURRENCE AND DEVELOPMENT OF POWDERY MILDEW ON MONGO. J. A. Soria and F. C. Quebral. *Philippine Agriculturist,* Aug.-Sept. 1973, v.57, nos.3-4, p.153-177. graph, tables. 21 refs.

The study was conducted from Nov. 1969 to Oct. 1970 to determine the relationship of airborne conidia, host age and degree of infection to environmental conditions. Results showed that the highest incidence of *Erysiphe polygoni* D.C. occurred in Jan. 1970 when monthly means of temp., relative humidity, wind velocity, total solar radiation and rainfall were 25.6°C, 85%, 1.8 mph, 9976 gm-cal-cm^2 day and 1.61 in., respectively. It is recommended that mongo should be planted at the time when vegetative growth of the plant will not coincide with the environmental conditions most favorable for the occurrence and development of powdery mildew. Timely application of protectant fungicide should be made before large numbers of *E. polygoni* D.C. conidia occur in the area.

635.8:631.5
Mushroom culture.

141. HOW TO GROW MUSHROOMS. *Sugarcane Farmers Bulletin,* Nov.-Dec. 1973, v.8, no.3, p.5-8, 12. tables. illus.

Mushroom thrives best in a shady or moist place free from strong wind and near a good source of water supply. A compact and strong soil foundation may be 25 cm high from the ground level and 60-80 cm wide, at a desired length. In case of sandy soil, the bed is built on top of the bench made of bamboo, wood or any other strong material that can support the weight of the bed. Some of the materials found excellent as substrate are wheat beans, brewers grain, leaflets or ipil-ipil, madre de cacao, leaves of beans, corn cubs, tobacco midribs, livestock manure, unhulled rice and coffee pulp. The procedures in preparing substrate are given.

ANIMAL HUSBANDRY AND PRODUCE

636.1.081:611.98
Leg — Horses.

142. FAULTY POSITION OF LEGS TO BE AVOIDED IN THE SELECTION OF HORSES. Valente Villegas (College of Agriculture, UPLB, College, Laguna). *Animal Husbandry and Agricultural Journal,* Aug. 1973, v.8, no.8, p.24-25. illus.

The different faulty positions of horse legs as viewed from the front are splay-footed and pigeon-toed, from the side, buck-kneed, calf-kneed and sickle-hocked, and from the rear, bandy-legged and cow-hocked. Both correct and faulty positions are described along with illustrations. Splay-footed and cow-hocked postures are the common faults observed. The latter should not be tolerated if the extent of outward position is excessive. Deviation from the correct position of the legs affects the animals' efficiency and more so the speed in the case of race horses.

636.2:612.616.1
Cattle — Castration.

143. THROWING DOWN ADULT CATTLE. Valente Villegas (College of Agriculture, UPLB, College, Laguna). *Animal Husbandry and Agricultural Journal,* Nov. 1973, v.8, no.11, p.27.

Cattle are thrown down for castration or spaying purposes, to treat a wound on the abdomen and inside the hind limbs on the upper region, to sow off the tips of pointed horns, and to trim off the ends of elongated toes. It is done by placing a halter on the head of the animal before the rope is arranged on its body. The ticklish effect of the hitch over the rear flank will cause the animal to fall as the rope is tightened over the regions. The head is then held down and the nuzzle is raised slightly upward preventing it from rising. The fore and hind legs are tied separately, before tying them up together.

Castrated bulls are stopped from reproducing its kind and the vicious ones become gentle, practically harmless and give good quality carcass as they fatten more readily because their attention is more on feeding and not detracted by sex desire for female.

636.293:591.134(914)
Carabaos, Weight and measurements of.
Carabaos (spleen).

144. ON THE MEASUREMENTS OF THE SPLEEN OF THE PHILIPPINE CARABAO (BOS BUBALIS). Edna Lucille Enriquez-Yap and Aurelio H. Almazan, Jr. (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June-Dec. 1973, v.12, nos.1-2, p.13-19. tables. 5 refs.

Study conducted on spleens from 60 (30 males and 30 females) freshly slaughtered carabaos, with ages ranging from 15 to 25 yrs, showed that sex does not influence its weight, length, width and thickness as shown by the following mean measurements: male carabao — weight, 970 ± 46.52 gm; length, 45.00 ± 6.32 cm; width, 14.51 ± 0.28 cm; and thickness, 2.20 ± 0.14 cm; female carabao — weight, 966.67 ± 44.80 gm; length, 14.60 ± 0.18 cm; width, 14.08 ± 0.36 cm, and thickness, 2.13 ± 0.10 cm. Spleens showed a bluish-red to purple color and were soft and yielding in consistency. They presented a convex parietal surface and a concave visceral surface bearing the imprints of the rumen. 2 straight borders (dorsal and ventral), both thin and flat, were seen converging towards each other at the 2 opposite rounded extremities of the organ. They were lighter, shorter, narrower but almost equal in thickness when compared with equine and bovine spleens.

636.293:591.413(914)
Carabaos — Anatomy.

145. THE INTRATHORACIC VESSELS OF THE PHILIPPINE CARABAO (BOS BUBALIS). Jose A. Solis and Ceferino P. Maala (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June-Dec. 1973, v.12, nos.1-2, p.1-7. illus. 4 refs.

An anatomy dissection was performed on 6 apparently healthy adult native carabaos of both sexes. The aorta and its branches together with the other intrathoracic vessels are described and studied with particular attention to their course, relations and ramifications. A slight difference was observed in these structures compared with those of the ox. However, the azygos veins in the carabao were found to be well-developed, exhibited a peculiar arrangement and distribution of their tributaries. — Authors' Summary

636.293.591.471(914)
Carabaos — Anatomy.

146. OS ROSTRALE OF THE PHILIPPINE CARABAO (BUBALUS BUBALIS). Jose A. Solis and Ceferino P. Maala (College of Veterinary Medicine, University of the Philippines,

Quezon City). *Philippine Journal of Veterinary Medicine,* June-Dec. 1974, v.13, nos.1-2, p.26-32. illus. 6 refs.

Os rostrale, a prenasal bone present in both carabao and ox, was found smaller in size in the case of the carabao with an incidence of 5% and can be found only among the aged ones (16-20 yrs). It develops at the inferior border of the cranial extremity of the nasal septal cartilage where the latter joins the ventral branch of the alar cartilage of the nostril on the nasal floor. In its fully developed form, it is a triangular, flattened piece of bone with generally roughed surface, weighing 0.4 g and measuring 1.7, 1.5 and 1.4 cm across its base, along the lateral border and from base to apex, respectively. It is presumed that os rostrale has no specific function at all but just a case of cartilaginous tissue undergoing calcification — a common phenomenon observed specially among aged animals.

636.4:612.616.1
Castration — Swine.

147. POINTERS ON PIG CASTRATION. Eliseo S. Contreras (Bureau of Animal Industry, Manila). *BAI Recorder,* Aug.-Sept. 1973, v.33, no.2, p.10-14. illus.

Briefly discussed are methods of restraining pig for castration with the use of castration crate and castration trench. Castration crate is practical in commercial piggery, while castration trench is usually used for large sized animals to minimize manpower needed to restrain animal force. The trench should be dug in such a way that the head portion is slightly higher than the body area and is big enough to hold the body of the animal while lying on its back. Castration without surgical operation is done in old impotent breeding boar with the injection of foragynol forte subcutaneously behind the ears from 8 to 10 cc/50 kg liveweight.

636.4.08
Swine — Performance records.

148. THE EFFECT OF NUMBER OF TEATS AND NURSING POSITION ON LITTER PRODUCTIVITY. V. G. Argañosa, F. F. Peñalba and M. B. de Ramos (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Oct.-Nov. 1972, v.56, nos. 5-6, p.198-205. tables. 13 refs.

Litters from 76 sows farrowed at the Dimayuga Farms, Nagcarlan (Laguna) during the summer of 1970 were used in the study. Results showed that significantly smaller pigs at birth were almost always driven to the posterior udder area during nursing time. As observed, the pigs preferred the first 5 pairs of teats. However, there were no significant differences in weaning weight of pigs that nursed the different teats.

The sows with different number of teats had essentially the same performance regarding litter size and weight at birth and at weaning, and percentage survival rate of the pigs to weaning time. There was no indication whatsoever that the number of teats of the sows in any way is related to reproductive and mothering abilities of the sow. The average age of the pigs for establishing permanent teat position was 7.05 days.

636.4.082.4(914)
Swine breeding.

149. BREEDING BEHAVIOR OF PHILIPPINE SWINE. Valente Villegas (College of Agriculture, UPLB, College, Laguna). *BAI Recorder,* Aug.-Sept. 1973, v.33, no.2, p.15.

The data on the reproductive habits of the breeds which enabled the swine raisers to manage the breeding animals well and produce more young stock are given, namely: 1) average first fertile mating age, 255.3 days ranging from 167 to 379; 2) age of sow at first birth or farrowing, 370.3 days ranging from 282 to 494; 3) size of the litter, 6.29 pigs ranging from 2 to 15 with sex ratio of 42.9% males in a population of 107 pigs; 4) birth weight, 0.6 kg ranging from 0.4 to 1.0 kg; 5) interval between farrowings, 247.3 days ranging from 156 to 476; and 6) number of farrowings/sow/yr from the first to the last farrowing, 1.89 ranging from 1.29 to 2.63.

636.4.085
Swine — Feeding — Experiments.

150. THE PROTEIN AND ENERGY REQUIREMENTS OF PIGS UNDER TROPICAL CONDITIONS. I. YOUNG PIGS. Jane Leibholz, J. A. Eusebio, V. G. Momongan, R. Mendoza and E. Eusebio (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Aug.-Sept. 1973, v.57, nos.3-4, p.93-101. tables. 19 refs.

A 3 x 3 factorial experiment was conducted on 30-day-old pigs (Landrace or Yorkshire x Native breed) with 4 kg initial average weight fed individually with 3 levels of crude protein in the diet (22.0, 19.5 and 17.0%) and 3 levels of digestible energy obtained by adding 0, 10, or 20% corn cobs to the diets for a 30-day period. The basal diet consisted of corn and soybean meal. Results showed that the weight gains and the feed conversion ratios for the 3 levels of crude protein in the diet were 9.07, 7.41 and 6.67 kg and 1.85, 1.95 and 2.11 for the ration treatments with 22.0, 19.5 and 17.0% crude protein, respectively. The apparent digestibility of dry matter, organic matter and energy was not affected by the protein content of the diets, but the digestion of nitrogen and sulphur was significantly lower for the 17% crude protein diet than for the 19.5 and 22.0% crude protein diets. The crude protein requirements for the pigs was found to be at least 22% of the diet.

The urea concentration in the blood plasma of the pigs increased as the crude protein content of the diet increased from 17 to 22%. The addition of 0, 10 and 20% corn cobs to the diets resulted in urea concentrations in the plasma amounting to 14.7, 15.9 and 16.9 mg/100 ml, respectively. There was also a significant interaction of protein and energy intake on the concentration of urea in the blood plasma.

636.4.085
Swine — Feeding — Experiments.

151. THE PROTEIN AND ENERGY REQUIREMENTS OF PIGS UNDER TROPICAL CONDITIONS. II. GROWING PIGS. Jane Leibholz, J. A. Eusebio, V. G. Momongan, R. Mendoza and E. Eusebio (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Aug.-Sept. 1973, v.57, nos.3-4, p.102-107. tables. 14 refs.

A 3 x 3 factorial experiment was conducted on 60-day-old pigs (Landrace or Yorkshire x Native breed) with 12.7 kg initial average weight fed individually with 3 levels of digestible energy obtained by adding 0, 10, or 20% corn cobs to the diet. The basal diet consisted of corn and soybean meal. The weight gains and the feed conversion ratios for the 3 levels of crude protein in the diet were 0.609, 0.541 and 0.474 kg/day and 2.77, 2.89 and 3.08 kg feed/kg gain for the 17, 15 and 13% crude protein diets, respectively. The addition of 10 or 20% corn cobs to at least 17% of crude protein diet did not affect the weight gains of the pigs but increased the feed conversion ratio by 2 and 7%, respectively. There was neither statistical difference in the weight gains of the pigs due to the addition of corn cobs to the diets, nor an interaction between the protein and digestible energy content of the diets and the weight gain of the pigs.

636.4.088 636.4.637.5
Swine carcasses.

152. CARCASS CHARACTERISTICS, SLAUGHTER BY-PRODUCTS AND MONETARY VALUES OF CULLED SOWS. P. F. Alcantara, V. G. Argañosa and E. E. Andaya (College of Agriculture, UPLB, College, Laguna). *Animal Husbandry and Agricultural Journal,* Sept. 1973, v.8, no.9, p.11-12, 14. tables. 3 refs.

Carcass data from 93 sows were collected to evaluate the carcass characteristics, lean cut yield and monetary value of culled sows. The animals were slaughtered after fasting them for 12-24 hrs following standard slaughtering procedure. The carcass measurements and fabrication were patterned after the procedure described by Argañosa et al (1970). On the average, the culled sows were 1182.6 days or 39 mo. old and weighed 121.9 kg. The lean cut yield totalled 52.55 kg broken down into 16.66 kg, 17.34 kg and 18.55 kg for shoulder, loin and ham, respectively. The sows gave the following yield: 69.3% chilled carcass, 10.5% chilled head, 11.6% for the different slaughter by-product and

10.4% for slaughter losses including chilling shrinkage. Based on UPCA prices for pork, culled sows had a carcass value of ₱350.49 and a total pig value of ₱413.36. — Authors' Abstract

636.5.082.4 636.5.085
Poultry — Egg production.
Poultry — Feeding — Experiments.

153. PHYSIOLOGICAL RESPONSES OF POULTRY TO HIGH LEVELS OF CRUDE IPIL-IPIL WATER EXTRACT. J. J. Saguindan, A. S. Alejar and M. M. Labadan (College of Agriculture, UPLB, College, Laguna). *Animal Husbandry and Agricultural Journal,* Aug. 1973, v.8, no.8, p.28-31. tables. 13 refs.

The effect of high levels of iodine, mimosine and ipil-ipil leaf meal on delaying sexual maturity to improve the laying performance was compared on 385 Single Comb White Leghorn pullets.

Sexual maturity of pullets fed on mimosine was significantly delayed, entailing a period of non-production especially during the period of feeding and about one mo. after withdrawal of mimosine from the feed. Likewise, pullets fed on ipil-ipil leaf meal depressed egg production significantly, although sexual maturity was not affected. Egg production performance during and after feeding treatments did not differ significantly among treatments while average body weight, feed conversion efficiency, rate of mortality, fertility and hatchability were comparable among treatments.

636.5.084
Poultry —Feeding.

154. HOW TO FEED YOUR CHICKENS. Yolanda L. Derilo. *BAI Recorder,* Aug.-Sept. 1973, v.33, no.2, p.26-28.

Primary activities involved in feeding any type of chicken are briefly discussed, namely: selection of the ingredients; a thorough or complete knowledge of the chemical composition of the ingredients; knowledge of the nutrient requirements; proper balancing of the ration; and adequacy of auxiliary nutrients like vitamins and minerals. In the case of high yielding layers, restricted nutrition at pullet stage results in higher birds at maturity, delay in sexual maturity and prolonged laying performance. To achieve a faster growth in rapidly growing broilers, a 2-phase feeding schedule is required, i.e. higher protein and energy feed content is given at the start and a slightly lower protein level for the fattening period (6th-8th wk). However, for the next 2-4 wks, the energy level should be maintained.

636.5.089:615.778
Poultry — Diseases and pests —
Therapeutics. Coccidiostats.

155. EVALUATION OF COYDEN AND AMPROL PLUS WITH OR WITHOUT 3-NITRO IN BROILERS RAISED UNDER NATURAL FLOOR PEN CONDITION. Mauro F. Manuel (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June-Dec. 1973, v.12, nos.1-2, p.38-46. tables. 8 refs.

Experiments conducted on 810-day-old Arbor acre broiler chicks showed that the addition of 3-Nitro to the Amprol plus or Coyden 25 medicated ration given continuously from a day old to market time significantly improved the growth and feed conversion. Under Amprol plus or Coyden 25 medicated ration, growth rate and feed conversion of chicks were better than those that received the basal ration alone.

636.5.089:615.778.2
Poultry — Diseases and pests — Therapeutics.
Sulfamonomethoxine.

156. THE PROPHYLACTIC EFFECT OF SULFAMONOMETHOXINE AGAINST LEUCOCYTOZOONOSIS IN CHICKENS UNDER FIELD CONDITIONS. Mauro F. Manuel and Elizabeth G. Morales (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June-Dec. 1974, v.13, nos. 1-2, p.147-155. tables. 23 refs.

The prophylactic value of Sulfamonomethoxine against natural infection of *Akiba caulleryi* in chickens under local conditions was evaluated. The drug was given continuously with the feed for 120 days at the rate of 50 ppm.

Results showed a total of 10(8.33%) out of 123 birds died of leucocytozoonosis in the non-medicated control group. None of the chicks in the Sulfamonomethoxine medicated group died of the same infection. An infectivity rate of 45.53% was obtained in the non-medicated control group while only 1.59% was derived in the Sulfamonomethoxine supplemented group. The drug had no adverse effect on the growth rate of both male and female White Leghorn chicks. The results proved that continuous medication in the feed with Sulfamonomethoxine at the rate of 50 ppm is highly effective in protecting White Leghorn chicks against leucocytozoonosis under field conditions. — Authors' Abstract

636.592.089
Turkeys — Diseases and pests.

157. A SEROLOGICAL SURVEY FOR COMMON POULTRY PATHOGENS IN TURKEYS RAISED IN THE PHILIPPINES. M. N. Novilla and Wilcox Uy Matiao (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June-Dec. 1974, v.13, nos.1-2, p.87-97. tables. 27 refs.

A serological survey was made on 714 turkeys from 3 farms located in Luzon for the presence of antibodies against Newcastle disease, *Mycoplasma* and *Salmonella* infections. Results showed that 69% reacted to Newcastle disease HI tests at different levels of antibody titer while 24% and 33% reacted to *Mycoplasma* and *Salmonella* antigens in the plate tests, respectively. The need for the implementation of the control measures against Mycoplasmosis and Newcastle disease simultaneously in turkeys and chickens is emphasized.

637.17
Milk, Carabaos'.

158. CARABAO MILK HAS NEW USE. *Animal Husbandry and Agricultural Journal,* Dec. 1973, v.8, no.12, p.8.

Carabao's milk can now be converted into toned milk which can make up for milk intake deficiencies. A mixture of about 3.5% fats and 9% non-fat solids can be prepared from carabao's milk. With the country's 4,000,000 work carabaos, toned milk can double local milk supply with half the usual needed time and cost.

637.433
Eggs — Preservation.

159. DIFFERENT METHODS OF PRESERVING CHICKEN EGGS. F. C .Argañosa and F. R. Sandoval. *Philippine Agriculturist,* Aug.-Sept. 1973, v.57, nos.3-4, p.108-115. tables. 14 refs.

A total of 615 infertile fresh eggs were preserved for 28 days by the following methods, each representing one treatment: 1) air-conditioned room; 2) room temp. on a tray without cover; 3) sealing at room temp.; 4) washing and not sealing at room temp.; 5) washing and sealing; 6) washing with soap and not sealing; 7) oil treatment; 8) washing, oiling and not sealing; 9) oiling and sealing at room temp.; and 10) washing, oiling and sealing at room temp. Only treatments 1, 2, 4, 6, 7 and 8 allowed the eggs to last until the 28th day of storage while the rest of the treatments enabled the eggs to last only until the 14th day of observation. After this period, the eggs were spoiled as shown by extreme mold, growth, broken yolk, watery albumen and extreme foul odor. Based on the average loss in weight and Haugh Unit Score, the best method of preserving eggs under local farm conditions (without refrigeration) is by oiling washed or unwashed eggs and storing at room temp. on uncovered carton egg tray.

FISHERIES

639.22/.23:576.8.093
639.4/.5:576.8.093
Marine products.

160. A SURVEY ON THE SANITARY HANDLING OF FRESH AND FROZEN MA-

RINE PRODUCTS IN THE PHILIPPINES: STANDARD PLATE COUNT AND COLIFORMS AS INDICATORS OF SANITATION. Ignacio S. Pablo. *Proceedings of the Eight Annual Convention of the Philippine Association of Food Technologists,* Nov. 27-28, 1973, p.78-86. tables. 8 refs.

The microbial analyses of the different marine products, such as shrimp (*Penaeus merguinensis*), lobster (*Panulirus*), prawn (*P. monoden*), blue crab (*Netusnus pelagicus*) and mud crab (*Scylla serrata*), oyster (*Grassostera*), scallops (*Pinna* sp.), maya-maya (*Lutjanus bahar*), asojos (*Sillago maculata*), lapu-lapu (*Epinuphelus corallicola*) and talakitok (*Carans stellatus*) from 7 regions in the country revealed the following results: 1) marine products possess relatively high initial microbial flora or contain fecal matters as noted by the presence of *Escherichia coli*; 2) the total aerobic plate count of the 6 shell fish products ranged from 51,000 to 1,430,000 organisms/g of sample with the lowest and highest total plate counts obtained from Samar and Bataan, respectively; 3) the fish had lower total plate count than the crustaceans and mollusks; 4) the lowest and highest total plate counts in fish were obtained from Zamboanga del Sur and Iloilo, respectively; 5) no correlation existed between total plate counts and coliform counts; and 6) marine products raised in brackish water were generally positive for coliforms while products grown in open sea water were found negative of these organisms.

639.3(914)
Catfishes. Fish culture.

161. THE CULTURE OF FRESHWATER CATFISH (CLARIAS SP.) IN THE PHILIPPINES. Ponciano C. Gutierrez and Simeona M. Aypa. *Animal Husbandry and Agricultural Journal,* Dec. 1973, v.8, no.12, p.14-16. 3 refs.

A 50 sq.m. or more pond of clay or clay-loam soil with a water depth of one m or more can be utilized for catfish culture. The escape of fish can be prevented by pressing the inner sides of the pond with heavy log or board. A small water pipe installed in the middle of the pond minimized their digging and stirring at the pond bottom. In the case of concrete ponds the bottom should be covered with at least 6 in. thick layers of good clay soil to create a natural habitat for the fish. The culture period of the fish (4-6 mo.) depends upon the size of the fingerlings to be stocked. The best time for stocking is late afternoon or early morning. The daily ration of feed given, usually fresh trash fish, worms, insects, slaughter house by-products, chicken entrails, freshwater shrimps (dried or fresh), fish offal and by-products of canning factories, is roughly 6-7% of the body weight of the fish stock. Harvesting is done by draining the pond when the fish are 20-25 cm long. The stocking rate, feeding habits, rearing period, growth rate and fertilization are briefly discussed.

639.31:615.777(914)
Fishes, Effect of chemicals on.
Pesticides — Injurious effects.

162. TOXICITY-TESTING OF PESTICIDES ON PHILIPPINE FOOD FISH. Reynaldo M. Lesacā (National Pollution Control Commission, Manila). *Proceedings of the Eight Annual Convention of the Philippine Association of Food Technologists,* Nov. 27-28, 1973, p.73-77. table. 5 refs.

Results of bioassay tests conducted by the National Pollution Control Commission on tilapia (*Tilapia mosambica*), hito (*Chlarias batrachus*) and bangus (*Chanos chanos*) showed different tolerance levels to DDT, dieldrin, endrin, malathion, methyl parathion and dithane M-45. DDT exhibited 48-hr and 96-hr median tolerance limits (T*l*m) of 0.004 ppm and 0.040 ppm, respectively on bangus. Hito showed a Tlm_{24} value of 0.01 and 0.0018 ppm to dieldrin and endrin, respectively. Upon exposure to malathion, dithane M-45 and methyl parathion, hito revealed high tolerance with 96 hrs survival to 0.01-0.032 ppm concentration. Tilapia and hito survived at the concentration of 0.01 ppm of both aldrin and dieldrin but bañgus at the same concentration survived for 24 hrs only.

DOMESTIC SCIENCE

641.1(914)
Pyridoxine. Food values.

163. VITAMIN B_6 CONTENT OF SOME PHILIPPINE FOODS. II. PROCESSED FOODS. Leogarda B. Dimaunahan, Aurea V. Lontoc and Olympia N. Gonzalez (National Institute of Science & Technology, Manila). *Philippine Journal of Nutrition,* July-Dec. 1973, v.26, nos.3-4, p.191-206. tables. 8 refs.

Total vitamin B_6 was determined in 181 processed and cooked food samples using the microbiological method and utilizing *Saccharomyces carlsbergensis* as the test organism. In general, dried fish particularly dried "pating" and "loro" and canned meat, such as chorizo de bilbao, liver and ham sausages, corned beef and beef stew have relatively high vitamin B_6 contents. Miscellaneous food items like dried molasses, "linga", peanut butter and "anis" as well as most of the dried fish samples may also be considered as good sources of vitamin B_6. Low amounts were found in canned vegetables, soups, milk, fruit preserves and cooked native snack foods. The processed foodstuffs contained lower amounts of vitamin B_6 compared to the corresponding fresh raw foods.

CHEMICAL AND ALLIED INDUSTRIES

66.014:582.949
Coleus blumei — Chemical composition.

164. PHOTOCHEMICAL INVESTIGATION OF COLEUS BLUMEI BENTH. I. PRELIMINARY STUDIES OF THE LEAVES. Lourdes L. Garcia, Luz L. Cosme, Honorata R. Peralta and Benigno M. Garcia (National Institute of Science & Technology, Manila). *Philippine Journal of Science,* March-June 1973(1974), v.102, nos.1-2, p.1-12. graphs. 13 refs.

The extraction, fractionation and isolation of the components of the mayana (*Coleus blumei* Benth.) leaves (purple variety) are discussed in detail. From this plant a long chain hydrocarbon, a sterol and triterpenoid compounds all unidentified are reported for the first time. Color reaction tests and paper chromatographic analysis showed the presence of flavonoid compounds. Preliminary biological studies indicated the presence of active constituents in the crude extracts that inhibited the growth of some microorganisms and the Ehrlich ascites tumor cells.

66.014:634.616
Coconut — Chemical composition.

165. PROXIMATE CHEMICAL COMPOSITION OF THE VARIOUS PARTS OF THE COCONUT PALM. Purita C. Francia, E. U. Escolano and J. A. Semana (FORPRIDECOM, College, Laguna). *Philippine Lumberman,* July 1973, v.19, no.7, p.26-30. flowsheet, tables, illus. 18 refs.

Analysis of the different parts of coconut palm showed the following results: holocellulose content, 44.4-66.7%; lignin, 16.2-39.2%; pentosans, 9.6-22.9%; hot water solubility, 2.4-16.3%; 1% caustic soda solubility, 22.9-47.2%; alcohol-benzene solubility, 1.7-7.6%; silica, 0.18-4.29%; and ash, 2.7-8.1%. Of the various parts analyzed, the trunk and coir appeared to approach closely the chemical composition of Philippine hardwoods, softwoods and bamboos. Their ash and silica contents were between those of the bamboos and the woods which made them possible raw materials for pulp and paper. The petioles with rachis, while unsuitable for chemical pulp due to high extractives, ash and silica contents, may be useful for semi-chemical or mechanical pulp. The husk, coir dust and leaflets with midribs would be interesting materials for further study.

66.093.3:636.5
Poultry processing plants —
Scalding and picking.

166. SUB-ATMOSPHERIC STEAM FOR PROCESSING POULTRY. *Better Poultry and Livestock,* July 1973, v.14, no.11, p.34-38.

The feasibility of the sub-atmospheric steam scalding method compared to the tank scalding method, using a commercial broiler processing line operating at 92 birds/min, is reported. A steam temp. of 124°F for 2 min exposure was found to be optimum with complete feather removal equal to 128°F for 2 min and retention of cuticle equal to or surpassing that for tank scalded birds. Under subscald conditions (134-138°F), typical sub-scald broilers, fowls and turkeys were obtained by one min treatment. Steam and tank scalded broilers have about the same shelf life at 37°F and about the same degree of tenderness. Much greater bacterial counts in tank scalded than in steam scalded birds were observed. However, after passing through the evisceration line and chiller, the total bacterial loads on the birds scalded by 2 methods were found similar.

66.093.6:633.825
Ginger.

167. A TECHNICAL STUDY ON THE DEHYDRATION OF GINGER. *Trends in Technology,* Dec. 1973, v.11, no.4, p.3-6. graphs, tables.

The drying of 4 samples of ginger — whole peeled, split peeled, split unpeeled and sliced unpeeled — was conducted using the tray, rotary and sun drying methods. Results showed that sun drying is the cheapest method of producing dried ginger, although it may not be the most practical since the harvest peak months for ginger fall between Oct. and Nov. Sliced unpeeled ginger dries fastest among the different product forms. The rotary dryer offers lower equipment and production costs than the tray dryer. However, the choice of product form should not be based solely on equipment and production costs. Market price differentials of the different product forms will affect their respective profitabilities and should therefore also be considered.

661.734.2:634.0.8
Tannins.

168. DEBARKING, YIELD AND TANNIN CONTENT OF SEVEN PHILIPPINE TANBARK SPECIES. A. L. Tongacan (FORPRIDECOM, College, Laguna). College, Laguna, Forest Products Research & Industries Development Commission, Sept. 1973. 3p. table, illus. 7 refs. (Technical note no. 133)

The species used in the study consisting of 64 trees were: anabiong [*Trema orientalis* (L.) Blanco.]; bitaog (*Calophyllum inophyllum* L.); kalumpit (*Terminalis microcarpa* Decne.); kamachile [*Pithecellobium dulce* (Roxb.) Benth.]; kupang (*Parkia roxburghii* G. Don); narra (*Pterocarpus indicus* Willd. forma *indicus*); and sakat (*Terminalia nitens* Presl). Results showed that the different stripping methods have no significant effects on the trees' regeneration and callus formation. Average yield of tanbark based on green and air-dry weights were as follows: bitaog in green and air-dry weights, 9.7 and 5.9 kg/sq.m, respectively; kamachile in green weight, 8.9 kg/sq.m.; kalumpit in air-dry weight, 4.7 kg/sq.m.; and narra, which gave the lowest yield both in green and air-dry weights, 5.6 and 2.3 kg/sq.m., respectively. The tannin content was lowest in anabiong (17.1%) and highest in kalumpit (42.0%). Generally, tannin content of the bark increased with the increase in age and size of the tree.

661.856.53:553.43
Copper sulfates.

169. A STUDY OF THE PROCESS OF PRODUCING COPPER SULFATE AND COPPER SALTS FROM CHALCOPYRITE. Pilarita A. Cocjin and Filipina S. de la Fuente (National Institute of Science & Technology, Manila). *Philippine Journal of Science,* March 1974, v.103, no.1, p.29-41. graphs, tables, illus. 5 refs.

Experiments were conducted to determine the optimum conditions under which $CuSO_4$ of industrial quality may be obtained from chalcopyrite. The modified methods of extraction at its optimum conditions were: 1) roasting the ground ore at 400°C for 6 hrs; 2) leaching the roasted ore with tap water and subsequently filtered; 3) evaporating the filtrate to half its volume to separate the 2 salts; 4) removing the

$Fe(OH)_3$ residue by filtration; and 5) concentrating the $CuSO_4$ solution until the specific gravity of the solution is between 1.2 and 1.4, the point where $CuSO_4$ starts to crystallize. No chemicals or reagents were needed for the extraction. The $CuSO_4$ produced by this method can be used as the starting material for the preparation of other copper salts, such as copper acetate, copper chloride, copper oxide, basic copper carbonate, copper phosphate and copper ammonium silicate.

661.871:553.3
Manganese oxides.

170. THE PRODUCTION OF MANGANESE DIOXIDE FROM MANGANESE ORES. Concepcion G. Pigao and Josefa S. Pesigan (National Institute of Science & Technology, Manila). *Philippine Journal of Science,* Sept.-Dec. 1971 (1973), v.100, nos.3-4, p.189-199. tables. 12 refs.

Manganese dioxide is produced from manganese ores by adding the required amount of $(NH_4)_2SO_4$ and roasting the ground ore at 500°C for 2 hrs. The manganese sulfate produced is leached with H_2O, filtered, and the filtrate freed of impurities by a series of pH adjustments. Ammonium carbonate is then added to precipitate $MnCO_3$ which is converted to manganese nitrate and finally calcined to decompose it to MnO_2. A relatively pure product was successfully produced from low-grade manganese ores using this procedure. — Authors' Abstract

662.71 662.74
Charcoal. Forest products.

171. CHARCOAL PRODUCTION AT FORPRIDECOM. N. B. Laxamana and P. V. Bawagan (FORPRIDECOM, College, Laguna). *Forpride Digest,* Sept.-Dec. 1973, v.2, nos.3-4, p.11-14. 10 refs.

The 4 methods of producing charcoal from sawmill wastes of local wood species, such as the pit, drum, retort or oven, and kiln methods, are briefly described. Charcoaling techniques have been developed based on the control of air allowed to enter the 2-cord kiln during the carbonization period. Sawmill wastes from mixed Philippine hardwood species, carbonized in a 2-cord kiln at 450°-600°C in 22-50 hr, produced charcoal with an average yield of 31.3%; volatile matter, 15.2%; ash, 4.3% and fixed carbon, 80.5%, based on oven-dry values. Destructive distillation of mixtures of wood species for 7 hr at 482°C gave a charcoal yield of 35.7%; settled tar, 7.9%; pyroligeneous liquor, 50.4%; soluble tar, 4.0%; acidity as acetic acid, 2.4%; and methanol, 1.9%. The pit and drum methods are suited for backyard or small scale production, while the kiln method for commercial production. The retort or destructive distillation method produces charcoal suitable for domestic and/or industrial uses.

663.1:639.222.6:577.15
Fermentation. Papain.

172. FISH FERMENTATION WITH THE USE OF PAPAIN. Gloria Guevara, Violeta C. Matias and Purita O. dela Pena (Bureau of Fisheries, Manila). *Proceedings of the Eight Annual Convention of the Philippine Association of Food Technologists,* Nov.27-28, 1973, p.103-110. graphs, tables. 12 refs.

Results of the experiments with anchovy (*Stolepherous* sp.) showed that 0.3-0.5% of purified papain is the most effective concentration in accelerating the fermentation process. Fermenting period of 6 mo. or more was reduced to 4.7 days without destroying the characteristic flavor inherent to the final product. Likewise, the use of crude papaya latex gave similar results.

664.38:634.616
Coconut products.
Coconut — Protein content.

173. CHARACTERIZATION OF THE COCONUT (COCOS NUCIFERA L.) SKIM-MILK PROTEINS. Ernesto S. Luis (College of Agriculture, UPLB, College, Laguna). *Chemists' Quarterly,* Dec. 1973, v.11, nos.3-4, p.2-43. flowsheet, graph, tables, illus. 38 refs.

The physico-chemical properties of coconut protein obtained from its skim-milk preparation were investigated using "variable-solvent" solubility test, amino acid analysis, paper and agar gel electrophoresis, immuno diffusion and immunoelectrophoresis. Skim-milk preparation was found to have large quantities of glutamic acid, arginine and aspartic acid, and small amount of half cystine and histidine besides appreciable quantities of all the essential amino acids. It was antigenic and was largely a globulin of the euglobulin type indicated by low solubility at low salt concentration, but highly soluble at high salt concentration. It was found to consist of a major and minor component evidenced by the presence of 2 breaks in the phase solubility diagram, of 2 bands in the paper and agar gel electrophoresis, 2 precipitin bands in the immunodiffusion test, and of 2 precipitin arcs in the immunoelectrophoresis. Based on these exhibited properties, the major protein in the preparation was identified as leticin.

664.38.002.67:635.656
Proteins. Beans, Mung — Protein content.

174. PREPARATION OF A CONCENTRATED AND RESOLUBILIZED PROTEIN (CRP) POWDER FROM MUNG BEAN PROTEIN ISOLATE. Alfredo C. Guerrero. Quezon City College of Home Economics, University of the Philippines, 1974. 13*l*. 79p. flowsheets, tables, diagr. 55 refs. (Thesis. M. S. in Food Science).

The study was conducted to prepare a low cost concentrated and resolubilized protein (CRP) for use as a skim milk extender from the mung bean (*Phaseolus aureus* Roxb.) protein by-product of the sotanghon industry. The techniques and the factors in the preparation of CRP are briefly discussed, namely the process of protein extraction from dehulled mung bean grits, the recovery of the protein isolate and its processing into a predigested protein flakes powder. The resulting CRP flakes of 60 mesh screen showed a protein content of 48% (10% moisture), a fat content of 10-11% and a Nitrogen Solubility Index of 86-89%. The yield of CRP/kg mung grits processed was 348 g. The CRP recovery was 90% based on the weight of protein used.

664.8.036.5:634.616.002.6
Coconut products. Canning and preserving.

175. DEVELOPMENT AND STORAGE CHARACTERISTICS OF CANNED COCONUT SYRUP. Aurea V. Lontoc, Olympia N. Gonzalez and Leogarda B. Dimaunahan (National Institute of Science & Technology, Manila). *Philippine Journal of Nutrition,* July-Dec. 1973, v.26, nos.3-4, p.243-252. graphs, tables.

Coconut syrup samples with a total soluble solids content of 65-68% were prepared from coconut milk extracted from a) meat of steamed whole nuts, b) steamed grated coconut and c) freshly grated coconut. Processing pre-treatments did not affect significantly the organoleptic qualities of the syrup nor was there a marked difference in their proximate composition. Storage at 37°C showed deterioration in quality within 6 mo. especially samples prepared from steamed whole nuts. Samples prepared from steamed grated meat and freshly grated meat stored at room temp. maintained their quality for 12 mo. storage period. — Authors' Abstract

664.8.036.5:664.38:634.616
Sausage — Composition. Coconut products.

176. THE USE OF ISOLATED COCONUT PROTEIN FOR THE PREPARATION OF NON-MEAT SAUSAGE PRODUCT. Estelita M. Payumo, Pacita R. Briones and Estrella A. Banzon (National Institute of Science & Technology, Manila). *Philippine Journal of Nutrition,* July-Dec. 1973, v.26, nos.3-4, p.253-260. tables. 23 refs.

The storage properties of the simulated sausage product prepared from a combination of coconut protein isolate, vegetable oil, seasoning, binder, emulsifier, flavor and color were investigated. Results of the organoleptic, chemical and microbiological analyses showed that the canned product was still highly acceptable after 6 mo. of storage at room temp., 28°-32°C. The non-meat sausage product closely resembled its meat counterpart in appearance, flavor, color, texture and proximate composition.

664.8.039.5:582.635.34
Fruit — Preservation. Jackfruit.

177. EFFECTS OF GAMMA RADIATION ON THE STORAGE PROPERTIES OF CANDIED JACKFRUIT (ARTOCARPUS HETEROPHYLUS LAM.) Hilda M. Giron, Bernabe Mauban, Olympia N. Gonzalez and Victoria Q. Alabastro (National Institute of Science & Technology, Manila). *Philippine Journal of Science*, Sept.-Dec. 1971(1973), v.100, nos.3-4, p.177-188. tables, illus. 13 refs.

The resulting products of candied jackfruit (*Artocarpus heterophylus* Lam.) prepared by using osmotic dehydration and the conventional method of syruping with subsequent oven-drying at different periods of time, were irradiated at 0, 150, 300 and 500 Kr. Results showed that irradiation to as high as 500 Kr did not improve their keeping quality. Initial microbial counts with low moisture levels (13.9-27.1%) were comparatively lower than those with high moisture values (34.1 and 53.8%), indicating that there is a critical moisture content (27.1%) to which candied jackfruit must be dried if irradiation is to be beneficial in decreasing microbial load. Irradiation with moisture levels of 20.5, 18.8 and 13.9% improved the texture of the candied fruits.

664.872:634.75
Yeast. Rhodotorula piliminae.

178. STUDY OF OPTIMUM FACTORS FOR THE PROPAGATION OF RHODOTORULA PILIMINAE (STRAWBERRY YEAST) IN BLACKSTRAP MOLASSES. Azucena N. Narvaez, Dolores G. Hipolito and Sesinia B. Sapigao. Manila, National Institute of Science & Technology, 1973. 14p. tables. 15 refs. Typewritten. (Scientific paper)

Factors conducive to the optimum growth of yeast under nutritional and environmental conditions are the following: pH 5.5; 1.5% sugar concentration; 0.375% bactopeptone; 0.50% $(NH_4)_2SO_4$ or 0.15% $CO(NH_2)_2$; 0.30% Na_2HPO_4 or 0.25% K_2HPO_4; 18 hrs of shake-flask cultures; and shaker at 120 strokes/min.

664.95:639.227
Tuna fish, Canned — Color.

179. PREDICTION OF "GREENING" ON STEAM-COOKED TUNA FISH BASED ON THE TRIMETHYLAMINE, pH AND SOLUBLE PROTEINS CONTENT OF RAW TUNA FISH. Belen O. Rillo (College of Home Economics, University of the Philippines, Quezon City). *Proceedings of the Eight Annual Convention of the Philippine Association of Food Technologists*, Nov. 27-28, 1973, p.116-124. tables. 10 refs.

The correlation coefficients and coefficients of determination between pH trimethylamine (TMA) and soluble proteins content of the raw yellowfin tuna and color and texture of the steam-cooked fish were determined. "Greening" in steam-cooked tuna fish, as measured by Munsell values and color scores, was significantly correlated with pH and TMA of the raw fish samples, but poorly correlated with soluble proteins content. Texture scores also gave a poor correlation with pH, soluble proteins and TMA content.

Raw tuna meat with pH 5.8 and TMA values up to 4.99 mg% have a cooked meat with normal pinkish to slight brown color while those with pH 6.1 and TMA value of 9 mg% and above resulted in "green" tuna. — Author's Abstract

665.344:66.061.5
Lumbang oil. Extraction processes.

180. IMPROVEMENT OF THE DRYING PROPERTY OF LUMBANG OIL. I. FORMATION OF UREA COMPLEXES. Raul C. Obach, Violeta P. Arida and Ramon C. Porras (National Institute of Science & Technology, Manila). *Philippine Journal of Science*, March-June 1972 (1974), v.101, nos.1-2, p.31-37. 12 refs.

Multiple extraction of lumbang oil was conducted using one mole oil to one mole urea ratio and 95% ethanol as solvent. An improvement on the drying property of lumbang oil at about 12 15 iodine numbers units using urea complexes was attained immediately after the 1st extraction. In the 2nd and 3rd extractions, the alterations in the iodine number are still within the same range indicating that there is a point beyond which further improvement in the iodine number is no longer possible.

665.344:66.061.5
Lumbang oil. Extraction processes.

181. IMPROVEMENT OF THE DRYING PROPERTY OF LUMBANG OIL. II. LIQUID-LIQUID SEGREGATION WITH FURFURAL. Raul C. Obach, Violeta P. Arida, Emmanuel G. Balanquit and Sixto A. Chua, Jr. (National Institute of Science & Technology, Manila). *Philippine Journal of Science*, March-June 1973 (1974), v.102, nos.1-2, p.13-20. tables, illus. 10 refs.

Liquid-liquid extraction of lumbang oil was conducted using 7 furfural to one oil volume ratio. Results showed a marked improvement on the drying property of lumbang oil by about 14-15 iodine number units which is the ceiling point for the segregation process of lumbang oil, beyond which no improvement is possible. The best temp. of extraction was found to be 28°C, while the furfural oil volume ratio has been established at 7:1.

665.344:66.094.3(914)
Lumbang oil. Ozonolysis.

182. THE OZONOLYSIS OF PHILIPPINE UNSATURATED OILS. II. LUMBANG [ALEURITES MOLUCCANA (LINN.) WILLD.]. Violeta P. Arida, Florecilla C. Borlaza (National Institute of Science & Technology, Manila) and William J. Schmitt (Ateneo de Manila University, Quezon City). *Philippine Journal of Science*, March-June 1972(1974), v.101, nos.1-2, p.93-95. table. 3 refs.

Ozonolysis of 20 g of lumbang oil dissolved in a solvent consisting of 350 ml hexane and 100 ml of ethanol was conducted and the resulting mixture was refluxed with 400 ml of 3% HNO_3 for one hr. Results gave an average yield of over 25% of white crystalline flakes azelaic acid with a melting point ranging from 92° to 106°C, which is then raised from 99° to 100°-101°C upon one recrystallization from boiling water containing a few drops of ethanol with 92.5% recovery. Both the yield and quality of azelaic acid obtained were better than that obtained from rice bran oil.

665.353.6:66.062:547.263
Coconut oil — Extraction.

183. STUDIES ON SOLVENT EXTRACTION OF RESIDUAL OIL FROM WET COCONUT MEAL USING ISOPROPANOL. A. L. Gonzales, E. F. Buccat, T. R. Claudio, N. M. Bueser, R. C. Landig and G. C. Mañalac (National Institute of Science & Technology, Manila). *Philippine Journal of Science*, March-June 1973 (1974), v.102, nos.1-2, p.31-43. graphs, tables. 19 refs.

The study made use of technical grade isopropanol and 95% ethanol as extractants of the residual oil from the wet coconut meal considering 4 varying factors on extraction efficiency, namely: a) meal to solvent ratio; b) extraction temp.; c) number of extractions; and d) extraction time. Results showed that under identical conditions, isopropanol gave a better oil extraction efficiency than ethanol. Moreover, the use of isopropanol can do away with the usual predrying of the wet meal prior to its solvent extraction since simultaneous extraction of the residual oil and water is possible with this solvent.

A maximum amount of oil was extracted from the wet coconut meal using a series of 5 extractions on the material of a 1:30 meal to solvent ratio at an extraction temp. of 60°C and an extraction time of 40 min. Under the same set of conditions, 97% of the orignal water of the wet meal may be extracted. However, such set of conditions is not applicable and economical for commercial scale extraction. A bench-scale and later a pilot plant-scale studies are recommended to establish data for commercial scale operation.

665.53
Petroleum refining — Sulfur removal.

184. HYDRODESULFURIZATION OF THIOPHENE, BENZOTHIOPHENE AND DIBENZOTHIOPHENE. Jane Theresita Guerrero. *St. Louis University Research Journal*, March 1974, v.5, no.1, p.98-125. graphs, diagr., illus. 5 refs.

The experiments were carried out by varying the feed rate for each temp. investigated and by analyzing the sulfur level of the product using a commercially available cobalt molybdate catalyst. Reactions were first orders as indicated by straight line plots. However, curvatures appeared at high conversions and especially at higher temp., due to the hindrance offered by H_2S adsorption on the catalyst surface and by the hydrocarbon adsorption, or the reactants themselves on a lesser degree.

Results obtained from the 2 proposed models used in correlating the desulfurization rate with adsorption-desorption effects of reactants and products for thiophene did not yield satisfactory results, due to the inadequacy of changes in the accuracy of the experiments which gave great changes in the values of the equilibrium constant.

A thorough study of these 3 compounds could be useful in correlating with the kinetic study of hydrodesulfurization of petroleum feed, especially the heavy stock which are known to contain a relatively great amount of these compounds.

668.44
Gums and resins.

185. DAMAR. A. L. Tongacan (FORPRIDECOM, College, Laguna). College, Laguna, Forest Products Research & Industries Development Commission, Dec. 1973. 3p. 8 refs. (Technical note no. 136)

Damar is a variety of hard resin obtained from the family Dipterocarpaceae of the genera *Balanocarpus, Hopea, Shorea* and *Vateria* and the family Burseraceae of the genus *Canarium*. All members of the Dipterocarpaceae secrete resin but only a few species of the genera *Balanocarpus, Hopea* and *Shorea* are of commercial importance. Philippine damar are the species under *Hopea* and *Shorea* and are widely scattered in Luzon, Visayas and Mindanao.

Damar films show no yellowing but they bleach to colorless films upon exposure to sunlight. Damar show a wide range of compatibility with resins, waxes, cellulose derivatives except with acetate, pitches, oils and similar materials. Among the uses of damar are: in cellulose lacquers due to its adhesive qualities, as ingredients to fume-proof enamels, in the field of plastics, floor polishers, printing inks and color in photography.

668.44
Oleoresins.

186. OLEORESINS. Z. B. Espiloy (FORPRIDECOM, College, Laguna). College, Laguna, Forest Products Research & Industries Development Commission, Nov. 1973. 3p. 8 refs. (Technical note no. 135)

The natural and prepared types of oleoresins consist predominantly of essential oil and resin. The former are exudates from trees while the latter are residues isolated by distillation or evaporation. Both are mainly used in flavoring and to a lesser degree in pharmaceutical and perfumery industries. Sources of prepared oleoresins come from almost any spice or herb. The natural oleoresins among which are turpentines, balsams and elemis, are briefly discussed.

669.018
Abrasives. Alloys.

187. NEW COMPOSITIONS FOR ABRASION RESISTANCE. E. M. Sacris (Atlas Consolidated Mining & Development Corp., Toledo City). *Philippine Mining Record*, Dec. 1973, v.7, no.1, p.39-41. diagr.

The production, mechanical properties and metallurgical aspect of 6-1 alloy (austenitic Mn steel with 6% Mn and 1% Mo) and 15-2-1 alloy (martensitic white iron with 15% Cr, 2% Mo and 1% Cu) are discussed. Under varying conditions of abrasions, results of actual wear performances of these alloys were very satisfactory compared to the Cr-Mo and Hadfield Mn steels previously used in certain applications.

VARIOUS INDUSTRIES

674:621.317.7
Moisture detectors.
Wood — Moisture content.

188. NON-CONTACT MOISTURE METER. E. M. Venegas (FORPRIDECOM, College, Laguna). College, Laguna, Forest Products Research & Industries Development Commission, Jan. 1974. 2p. illus. 5 refs. (Technical note no. 137)

A new concept in lumber-moisture measurement was found to be a satisfactory production-line gauge for lumber. It involves a meter head that does not get in contact with the lumber and is unaffected by surface roughness, wood density, grain angle or production-line speed. This non-contact moisture meter can accurately measure lumber traveling through it at any rate of speed and can accomodate any size and misconfigurations present in the board without a significant variation in the reading.

The theory of the new meter is discussed.

674.02-4
Lumber industry and trade.

189. VOLUME LOSS DUE TO VARIATION IN SAWING PRECISION AT BANDMILLS IN MANILA AND SUBURBS. F. D. Virtucio and and F. G. Lapitan. *Forpride Digest*, Sept.-Dec. 1973, v.2, nos.3-4, p.15-21. tables, illus. 8 refs.

The effect of sawing variation on volume loss and lumber quality was studied at 2 bandmills in the suburbs of Manila. Results showed that the lumber produced was of sub-standard quality. Based on standard hardwood grading rules for our export lumber, all sample boards as tallied were classified as miscut as far as thickness variation among boards was concerned. Miscut pieces due to thickness variation within boards were only 2% in the more accurate cutting sawmill, and 7% in the less accurate cutting bandmill. Of the 225 sample boards, 67% at "Sawmill A" and 74% at "Sawmill B" were below the normal size. The lumber contained 16% less volume for a nominal 2" and about 31% for a nominal one inch green stock.

674.03:581.4(914)
Wood — Anatomy.

190. WOOD ANATOMY OF EIGHT TERMINALIA SPECIES OF THE PHILIPPINE COMBRETACEA. Benigno A. Lomibao (FORPRIDECOM, College, Laguna). *Forpride Digest,* Sept.-Dec. 1973, v.2, nos.3-4, p.22-34. illus. 9 refs.

The anatomical structures, general characteristics, properties and uses of 8 *Terminalia* species, namely: talisai (*T. catappa* L.); binggas [*T. citrina* (Gaertn.) Roxb.]; lanipau (*T. copelandii* Elm.); *malaputat* (*T. darlingii* Merr.); talisai-gubat (*T. foetidissima* Griff.); kalumpit (*T. microcarpa* Decne.); sakat (*T. nitens* Presl); and dalinsi (*T. pellucida* Presl); are closely similar to one another.

Their sapwood is thick and yellowish, merging gradually into the heart-wood which is reddish brown. The woods are slightly interlocked to crossed or wavy-grained; moderately fine-textured; taste and odor not characteristic; and vary from light to heavy. The specific gravity at 12% moisture content ranged from 0.48 in lanipau to 0.79 in binggas. All the species were positive in frothing test.

These species can also be identified or grouped into: 1) absence of idioblasts and occurrence of rhomboidal crystals in axial parenchyma and ray cells, as in binggas; and 2) presence of idioblasts which sometimes contain druses, as in dalinsi, kalumpit, lanipau, malaputat, sakat, talisai and talisai-gubat.

674.03:581.4(914)
Wood — Anatomy.

191. WOOD ANATOMY OF SEVEN POTENTIALLY COMMERCIAL PHILIPPINE SPECIES.

Benigno A. Lomibao. *Philippine Lumberman,* Nov. 1973, v.19, no.11, p.22, 24-29. table, illus. 15 refs.

The anatomical structures, general characteristics, properties and uses of 7 potentially commercial species are described, namely: anongo (*Turpinia ovalifolia* Elm.); apanit (*Mastixia philippinensis* Wang.); balakat-gubat [*Sapium luzonicum* (Vid.) Merr.]; bonotan (*Trichospermum discolor* Elm.); itangan (*Weinmannia luzoniensis* Vid.); mamalis [*Pittosporum pentanarum* (Blanco) Merr.]; and tulo (*Alphitonia philippinensis* Braid.). Their sapwood is not distinct from the heartwood. They are straight-grained or slightly to heavily interlocked and fine to moderately coarse-textured; the odor and taste are imperceptible, except anongo which has an aromatic odor. The wood vary from exceptionally light as in bonotan (sp. gr., 0.296, 12%MC) to heavy as in mamalis (sp. gr., 0.558, 12%MC). — Author's Abstract

674.243:633.18.002.67
Filling materials — Rice hull.

192. RICE HUSK FOUND VITAL IN PLYWOOD-MANUFACTURE.

Forest & Farms, Dec. 1974, v.7, no.6, p.10, 26.

Results of a one-yr study (May 1972-May 1973) showed that rice hull (husk) powder can be used as a filler for phenol formaldehyde glue (PEG) and can compare favorably with coconut shell powder which is a standard filler for phenol formaldehyde resin, a substance used extensively in the manufacture of extervon plywood. It improved the quality of PEG glue in terms of bond strength and percentage of wood failure when used up to 40%. The higher the percentage of rice hull powder filler, the shorter was the pot life of the glue mix. The high ash content of rice hull powder, 21.7 and 19.8% in a 140-mesh and 40-mesh powder, respectively indicates its strong effect on the dulling of cutting tools. Comparative study of the effect of rice hull filler and coconut shell powder filler on the dullness of cutting tool gave the same result.

676.12
Fibers. Waste paper.

193. SECONDARY FIBERS.

Y. L. Tavita (FORPRIDECOM, College, Laguna). College, Laguna, Forest Products Research & Industries Development Commission, July 1973. 2p. 6 refs. (Technical note no. 131)

Fibers recovered from waste papers are termed "secondary or recycled fibers". The advantages of the use of secondary fibers are: low cost of bulk-waste papers compared to the high cost of virgin pulps; the recycled fibers are shorter, form better and require less refining to prepare them and require less refining resulting in the reduction of overall production costs. Deinked waste papers when recycled have improved dimensional stability, increased opacity, bulk and softness, more uniform formation, better size and filler retention and lower power requirements. However, there are limitations on its reuse due to the presence of contaminants and lack of strength.

681.14
Calculators.

194. ELECTRONIC DESK CALCULATORS IN ENGINEERING COMPUTATIONS.

Jose Ma. de Castro. *Philippine Architecture, Engineering & Construction Record,* Oct. 1973, v.20, no.7, p.7, 10-11, 36-37. illus.

All formulas and techniques provided for, as well as the detailed computational steps, were tried on the Toshiba BC-0804B electronic desk calculator. Modifications have been made because some of the original techniques and formulas required special built-in functions in addition to the 4 basic arithmetic functions, floating point decimal function and a special function key. For other calculators, some minimal modifications may be made to suit the particular model's circuit characteristics. It should be emphasized, however, that the convenience of eliminating frequent table look-ups is obtained at the expense of additional computation steps. This desk calculator is as versatile a tool as the slide rule in performing engineering calculations. Moreover, it provides facility for addition and subtraction which can not be done by means of the slide rule.

691.11.002.68
Building materials. Agricultural waste.

195. HOLLOW BLOCKS FROM AGRICULTURAL-WOOD WASTE MATERIALS. *Philippine Architecture, Engineering & Construction Record,* Nov. 1973, v.20, no.8, p.16. illus.

Wood particles, rice hulls, coconut-trunk, chips, sawdust and even ordinary soil can be conveniently used as substitute for gravel and sand for the manufacture of construction blocks. These agricultural wood waste hollow blocks were found as strong as the 15 other commercial brands of locally manufactured concrete hollow blocks when tested at the FORPRIDECOM (Laguna). The same waste materials used as filler make the construction of hollow blocks less expensive than the concrete ones. Inspection of 6-mo.-old houses revealed that some of the walls and partitions of units with hollow blocks from wastes are as sound as those made of concrete hollow blocks. Generally, rice hull and sawdust hollow blocks are less liable to cracking when used as walls or partitions than soil hollow blocks.

LIST OF PUBLICATIONS ABSTRACTED

NOTE: Listed hereunder are the publications from which pertinent articles are abstracted in this issue.

A. PERIODICALS

Acta Manilana

Acta Medica Philippina

Animal Husbandry and Agricultural Journal

BAI Recorder

Better Poultry and Livestock

CLSU Scientific Journal

Chemists' Quarterly

Chest Diseases

Filipino Family Physician

Forest Products Research & Industries Development Commission Technical note

Forests and Farms

Forpride Digest

Greenfields

Journal of the Philippine Medical Association

Leyte-Samar Studies

Philippine Agriculturist

Philippine Biota

Philippine Educational Forum

Philippine Journal of Cardiology

Philippine Journal of Nutrition

Philippine Journal of Pediatrics

Philippine Journal of Science

Philippine Journal of Veterinary Medicine

Philippine Lumberman

Philippine Mining Record

Philippine Scientists

Proceedings of the Eighth Annual Convention of the Philippine Association of Food Technologist

St. Louis University Research Journal

Sugarcane Farmers Bulletin

Sugarland

Trends in Technology

Veterans Memorial Hospital Journal

B. OTHER DOCUMENTS

Scientific papers:
    National Institute of Science and Technology
    Philippine Atomic Energy Commission

Theses:

    University of the Philippines College of Home Economics

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Philippine Abstracts

A quarterly classified summary of the latest Philippine publications in the field of science and its applications (UDC 5 and 6)

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PHILIPPINE ABSTRACTS

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the field of science and its applications (UDC 5 and 6)

Vol. 16, Nos. 3-4

July - December 1975

GEOLOGY

551.481.1(28)
Fresh water ecology - Philippine Islands.

196. Lake Lanao as a potential fresh water source for Pacijan Island (Camotes). Wilhelm Bruell. *Philippine Scientist,* 1974, v.11, p.42-46. tables.

The karst characteristic observed in the body of Pacijan Island indicated that Lake Lanao is the result of an extensive collapse of a subterranean water-carrying channel system which continues to receive water percolating from the grounds and drains through a narrow channel(s) into the surrounding sea. The major constituents as determined from water samples showed the characteristics of diluted sea water, with alkali chloride, magnesium and sulfate predominating. The lake was also found to consist of about 97% fresh water. The systematic comparison of the measured chloride data pointed to the location of the outflow region(s) with sufficient precision and also gave indications as to where subterranean water inflows enter the lake and where drinking water may be found. Further studies of the lake may yet find a way to convert the water in the lake into a big source of fresh water.

553.2
Mines and mineral resources.
Geology, Stratigraphic.

197. Geology and mineral resources of Sorsogon Province. Manila, Bureau of Mines, Nov. 1974. 13p. map. (Report of investigation no. 76)

Presented are series of reports covering mineral prospects and deposits of the province. The topographic feature is dominated by clusters of volcanic mountains or cones which contributed much to its underlying rocks. The exposed rocks include volcanic and sedimentary rocks with 90% Pliocene and Quaternary formations. Mineral prospects and deposits include coal, sulphur, limestone, pumice and pumicite, white clay glass sand and magnetite beach sand.

BIOLOGICAL SCIENCES

576.312:582.542
Chromosomes - Number - Plants.
Saccharum spontaneum.

198. Cytological survey of Saccharum spontaneum L. in the Philippines. Kanokporn Rithidech (Kasetsart University, Thailand) and D. A. Ramirez (College of Sciences and Humanities, UPLB, College, Laguna). *Philippine Agriculturist,* Oct.-Nov. 1974, v.58, nos.5-6, p.205-224. tables, illus. 19 refs.

Based on the chromosome numbers of the 10 clones of *S. spontaneum* L. collected from different parts of the Philippines, 3 groups were identified as Group I, $2n = 56$; Group II, $2n = 72$; and Group III, $2n = 80$. The mitotic cells showed a wide range of variability in chromosome number ranging from 53 to 85 and were observed to be multinucleoted with each cell having a nucleoli number of 1-7. Chromosome mosaics were observed in somatic cells at a low frequency (18-22%). Microsporogenesis was normal in all clones with a high frequency of multivalent association of the chromosomes (56.28-95.68%) indicating the high degree of polyploidy of *S. spontaneum* chromosomal aberrations, consisting mainly of laggards and bridges occurring at a very low frequency (1-6.16%). The clones with higher chromosome number (Group III) were observed to be more widely distributed compared to the other groups growing in mountain ranges, high altitudes, river banks and grasslands indicating that it is more preferrable in selecting the superior parent for interspecific and intergenesis hybridization.

576.8.095:593.161.13
Trypanosoma cruzi.

199. On the origin of trypomastigotes of Trypanosoma cruzi in cell-free media. Gloria L. Enriquez (Dept. of Zoology, University of the Philippines, Quezon City), Hiroja Kambara and Shozo Inoki (Dept. of Protozoology, Research Institute of Microbial Diseases, Osaka University, Osaka, Japan). *Kalikasan,* 1974, v.3, no.2, p.98-102. illus. 7 refs.

Trypanosoma cruzi cultured in a medium consisting of TCM 199, 10% calf serum and 5% hemolyzed rabbit blood was found to transform and divide into epimastigotes which later on undergo fission into daughter epimastigotes and trypomastigotes. Trypomastigotes predominated in the culture only for a short period of time suggesting that its ability to multiply is limited.

577.156:582.28:539.12.04
Proteases.
Fungi, Effect of gamma rays on.

200. Effect of irradiation on protease production by a Philippine strain of Aspergillus oryzae (Ahlburg) Cohn. Pilar G. Anglo. Los Baños, Laguna, University of the Philippines, 1974, 11 . 52p. graphs, tables, illus. 33 refs. (Thesis. M. S. in Microbiology)

The Philippine strain of *A. oryzae* was exposed to ultra-violet rays and ionizing radiation from Cobalt-60 to obtain possible mutants or resistant strains which produce powerful proteolytic enzymes. Study showed the following results: 1) of the 58 isolates studied, only isolates G-10, G-110 and 23-110 gave significant proteolytic values, producing active protease from the 2nd day of incubation to the 5th day; 2) the optimum incubation temperature for the 3 isolates was between 24° and 27°C, giving highest percentage of active protease; 3) the selected isolates showed maximum digestive ability at temp. 45°-55°C, giving proteolytic values of 833; 4) the enzymes produced by the irradiated isolates G-10 and G-110 were very active at pH 9.0-10.0 and isolate 23-110, at pH 6.0-10.0. The parent strain revealed 2 pH optima, one at pH 7.5-8.5 and the other at pH 9.0-9.5. Crude enzyme powder gave activities comparable to Alkalase and Maxatase, Commercial proteolytic enzymes from Belgium and Netherlands.

BOTANY

581.11:546.72:635.3/.5
Absorption (physiology) - Plants.
Vegetables - Iron content.

201. Iron absorption studies using biologically labelled vegetables. Iluminada C. Ortaliza, Lourdes A. Salamat, Trinidad P. Trinidad, Florcerfina O. Jacob (Food and Nutrition Research Institute, Manila) and Benjamin de la Cruz (Philippine Atomic Energy Commission, Quezon City). *Philippine Journal of Nutrition,* July-Sept. 1974, v.27, no.3, p.22-29. tables. 25 refs.

Iron absorption from some local plants, such as petsay (*Brassica chinensis* Linn.), kamote tops (*Ipomoea batatas* Linn.), kangkong (*I. aquatica* Forsk), kintsay (*Apium graveolens* Linn.), letsugas (*Lactuca sativa* Linn). and mustasa (*B. integrifolia* West O. E. Schutz) tagged biosynthetically with ^{59}Fe was evaluated using normal rats. Except for petchay, results showed successful incorporation of ^{59}Fe in all plants studied. Iron uptake ranged from 6 to 19% only in the test, the highest yield and activity being obtained in kamote tops. The mean iron absorption values from the different vegetables in the rats ranged from 4.5 to 9%. When absorption values were computed in relation to the absorption of an iron salt, no statistical differences were observed among the vegetables.

The technique used for tagging vegetables is described.

581.13.04:633.18
632.954:633.18
Botany - Physiology.
Herbicides - Effect on plants.

202. Effect of Trifluralin on sugars in rice seedlings. Beatriz L. Mercado and Aurora M. Baltazar (College of Agriculture, UPLB, College, Laguna). *Philippine Journal of Science,* June 1974, v.103, no.2, p.91-95. tables. 9 refs.

Three-day-old rice seedlings were treated with 50 ppm trifluralin solution for 24 hrs. Growth response in intact and deseeded seedlings, sugar content and invertase activity were determined. Results showed that Trifluralin induced growth inhibition in intact and deseeded seedlings provided with artificial medium. Qualitative analysis of sugars revealed the presence of glucose, fructose and sucrose in the decapitated root and grain of the control. Treatment with Trifluralin decreased sucrose to an undetectable level in the decapitated root with no change in the grain. Invertase activity was detected only at the root tip of both control and treated seedlings. An inhibited transport of metabolites in Trifluralin-treated seedlings is considered a probable explanation to the physiological modifications induced by the herbicide.

581.132:633.17
Botany - Physiology.
Sorghum - Field experiments.

203. Net carbon exchange, nitrate reductase and total available carbohydrates of two sorghum varieties at three nitrogen levels. R. K. Palis and N. V. Norcio (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Oct.-Nov. 1974, v.58, nos.5-6, p.181-191. graphs, tables. 20 refs.

Net carbon exchange (NCE) and nitrate reduction activity (NRA) of 2 varieties (Cosor 1 and 2) of sorghum (*Sorghum bicolor* L. Moench) increased while their total available carbohydrates (TAC) decreased as added nitrogen level was increased from 0 to 90 kg/ha. NCE, as well as specific leaf weight, was highly correlated with NRA which may be traced from the energy requirements of photosynthesis and nitrate reduction. TAC showed an inverse relationship with NRA due to the generation of reduced pyridion nucleotide from respiration for nitrate reduction. Both TAC and dry matter content of sorghum head accounted for 50-70% of the total composition of mature plants emphasizing the importance of high NCE rates for greater dry matter production and carbohydrate synthesis.

581.14:631.531:633.18
Germination - Effect of salts.
Rice - Laboratory experiments.

204. Germination and seedling performance of rice NaCl solution. B. T. Mercado, L. L. Rodrin and A. D. Dilig (College of Agriculture, UPLB, College, Laguna). *Kalikasan*, 1974, v.3, no.3, p.179-186. graphs, tables. 12 refs.

$CaCl_2$ pretreated seeds of salt tolerant IR-8, moderately salt-tolerant PB76-TB188 and salt-sensitive C_4-63 were germinated in different levels of NaCl solution for 7 days. Results showed that there was a reduction in the final germination of the 3 cultivars in high levels of NaCl and a decrease in dry weights in lower salinity levels. Reduction in root growth occurred in the seedlings grown in the salinized medium regardless of the concentration of the pretreatment. On the other hand, pretreating the seeds improved or maintained the germination relative to the control even at a very high salinity level. C_4-63 seeds germinated better when pretreated with higher level of $CaCl_2$ (1.0%) while IR-8 showed higher germination at a much lower level of the pretreatment (0.5%).

581.43:581.143
Roots - Morphology.
Roots - Measurement.

205. The natural distribution of the root systems of citrus, lanzones and cacao. R. V. Valmayor, P. C. Tabora, Jr., M. R. Ramirez, W. A. Herrera and A. B. Asencion. *Philippine Agriculturist*, Oct.-Nov. 1974, v.58, nos.5-6, p.244-262. tables, illus. 12 refs.

Results of root mapping studies revealed that the maximum lateral root growths in lanzon, citrus and cacao trees were 8, 12 and 7 ft, respectively. Most of the lateral roots branched from the primary root at points within the first one-foot depth. The greatest density of absorbing roots was found in the upper-most one-foot layer of soil. The maximum root depth of penetration was 4 ft in lanzon and cacao trees and 3 ft in citrus trees. The feeder roots were nearly uniformly distributed within areas ranging from 1 to 4 ft distance from the trunk. Hence for maximum utilization, fertilizer must be applied on the area of greatest root concentration. The observed depth of rooting also suggests that under similar soil and cultural conditions, depth of irrigation need not extend more than 2 ft.

581.6:581.33
Pollen - Density. Allergens.

206. Pollen allergens in bronchial asthma in the Philippines. Felicidad Cua-Lim. *Journal of the Philippine Medical Association*, July-Aug. 1974, v.50, nos.7-8, p.145-164. graphs, tables. 2 refs.

Data on the aero-palynological 12-mo. samplings in 5 different sites in the Philippines with regards to the atmospheric pollen pollution are gathered and presented to serve as a guide for allergists in the treatment of asthmatics. In Baguio City, pine pollen grains prevailed during the months of Feb.-April, while in Quezon City, Mimosa pollen followed by grass pollen prevailed heavily in Nov.-Jan. Heavy incidence of Amaranths and Mimosa pollens from Jan. to April was observed to predominate in Los Baños, Laguna. Pollen pollution in Bacolod City and Davao City was consistently low throughout the year, except for the predominance of grass pollens. Generally, the most common source of atmospheric pollutants among the 5 stations came from the grass pollens with varying density in micro-localities where abnormally dense growth of any single species may be located.

581.8:582.61
Plant cells and tissues.
Dicotyledons.

207. The primary tracheary elements of dicotyledons. II. Dilleniales. Prescillano M. Zamora (College of Arts and Sciences, University of the Philippines, Quezon City). *Kalikasan*, 1974, v.3, no.1, p.56-65. tables, illus. 18 refs.

Thirteen species in 6 genera belonging to 3 families, namely Dilleniaceae, Crossosomataceae and Paeoniaceae were compared as to their variations of structures of the lateral wall and intervascular overlap areas of the primary tracheary elements within the protoxylem-metaxylem transition. In Dilleniaceae, the intermediate elements are of the Hel-ScB type in which the second order framework is in the form of sheets along cell edges and strands on cell faces, while those in Crossosomataceae and Paeoniaceae are of the Hel-ScRet type in which the second order framework is in the form of oblique strands. Recognizable differences exist among these families in the kinds of perforation plates occurring throughout the transition, in the number of bars in the scalariform plates in the various cell types, and in the frequency of imperforate contact areas associated with the other types of perforation plates. However, the presence of inter-connecting strands in various amounts between bars of some of the scalariform plates is a common feature among the families.

581.8:634.0.81
Botany - Anatomy. Tracheids.

208. Tracheids and types of cross-field pits of some Philippine softwoods. G. I. T. Zamuco, Jr., Y. L. Tavita and J. G. Palisoc. *Philippine Lumberman*, Jan. 1974, v.20, no.1, p.42, 44, 46, 48, 50, 52, 54, 56, 60, 62. tables, illus. 17 refs.

Ten species of conifers investigated were: almaciga (*Agathis philippinensis* Warb.); Benguet pine (*Pinus insularis* Endl.); Mindoro pine (*P. merkusii* Jungh. & de Vr.); igem [*Dacrycarpus imbricatus* (Blume) de Laubenfels]; *Dacrydium beccarii* Parl. var *beccarii*; malaalmaciga [*Decussocarpus wallichianus* (Presl) de Laubenfels]; dalung (*Phyllocladus hypophyllus* Hook. f.); malaadelfa (*P. neriifolius* D. Don); lubang-lubang (*P. pilgeri* Foxw.); and mountain yew (*Taxus wallichiana* Zucc.). The tracheids of the species are generally thin-walled, moderately short to long with rounded ends, with small to large bordered pits which are predominantly uniseriate to biseriate and seldom in multiseriate condition. Their tracheid length in mm ranged from 2.53 to 5.53, fiber diameter from 0.039 to 0.060, lumen width from 6.02 to 0.042 and cell wall thickness from 0.006 to 0.012. The type of crossfield pits varied from pinoid, taxodioid, cupresseoid to piceoid.

Although there was no generalized conclusion given due to the limited number of samples investigated the distinguishing features of their tracheids and cross-field pittings may help in the identification of the species. Photomicrographs of isolated tracheids and illustrated cross-field pittings in sections are presented.

581.824
Phloem.

209. Included (interxylary) phloem. B. A. Lomibao (FORPRIDECOM, College, Laguna). College, Laguna, Forest Products Research and Industries Development Commission, Oct. 1974. 2p. 10 refs. (Technical note no. 146)

Interxylary phloems are strands of secondary phloem which develop within the wood and appear either in foraminate of in concentric forms. This or any other anomalous structures, such as pith flecks and bark pockets constitute a defect in the timber. However, their presence may enhance the figure of the wood and may help in wood identification.

The woody families with representative species characterized by foraminate and concentric interxylary phloems are given.

581.9:631.95
Plants, Geographical distribution of.
Vegetation patterns.

210. The geographical distribution of the flora of Cantipla, Cebu and Basey, Samar. Adelaida Colina and Junonia Jumalon. *Philippine Scientist*, 1974, v.11, p.33-41. tables. 7 refs.

The amount and distribution of rainfall, and the elevation and type of soil influence the vegetative patterns of both Basey and Cantipla. The absence of a maximum rain period and higher elevation in Cantipla account for the low quantitative diversity of the vegetation in contrast to some areas of Basey where a climax vegetation of dipterocarps and wild fig trees is prominent. The remnants of the original forest, mainly dipterocarp, in Cantipla do not exhibit any layering and the trees are generally immature and sparse. Flora is secondary in nature and being fire-climax area has lost its soil fertility. The quantity and distribution of the rainfall and temperature in Basey are uniform and some areas are even inundated because of the low elevation thus present a denser type of vegetation. Both qualitative and quantitative diversities in this region are remarkably high, the latter being more pronounced in the developmental and the seral communities, and the reverse being true of the dipterocarp forest.

General observations, however, also showed that topographic, edaphic and climatic factors have less influence on the modification of the forest coners of both Cantipla and Basey than the destructive hand of man.

582.26:581.52
Algal population. Algae - Ecology.

211. Algal succession in the ricefields of College and Bay, Laguna. J. B. Pantastico and Z. A. Suayan (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist*, Dec. 1973-Jan. 1974, v.57, nos.7-8, p.313-326. graphs, illus. 5 refs.

Twenty-one algal species collected were classified under 4 divisions, 5 classes, 10 orders and 14 families. The predominant genera were listed in a decreasing order as follows: *Euglena, Oedogonium, diatoms,* such as *Navicula, Rhopalodia* and *Fragilaria, Scenedesmus, Cladophora, Spirogyra, Oscillatoria* and *Chara*. Members of the Chrysophyta (diatoms) predominated while each field was being prepared for planting, followed by the Chlorophyta and Euglenophyta as the rice seedlings were growing and finally succeeded by Cyanophyta just before and during harvest. Environmental conditions varied negligibly between the 2 fields so that comparable algal species were present except "*Euglena* blooms" which appeared the whole year round at the College rice fields.

582.266:581.14
Algae - Development.
Cladophora aegagropila.

212. Polar responses in Cladophora aegagropila. M. T. Zafaralla and J. B. Pantastico (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist*, Dec. 1973-Jan. 1974, v.57, nos.7-8, p.290-297. table, illus. 11 refs.

Ordinary vegetative cells of *C. aegagropila* retained their morphogenetic polarity when transformed into akinetes which could be determined through the development of branches at the apical end and rhizoids at the basal ends. Similarly, the reorientation of the thallus (upright, horizontal and vertical positions) did not affect the normal polarity of the akinetes. On the other hand, when detached from the thallus, akinetes acquired a labile state of polarity. In later stages of growth, not all akinetes retained their morphogenetic polarity as evidenced by the formation of a new axis. Light seems to be an important factor in the establishment of a new polar axis in detached akinetes.

582.266:581.143
Algae - Development.
Akinete. Cladophora.

213. Akinete differentiation in Cladophora sp. II. Interaction among light, quality and duration and growth regulators. Julia B. Pantastico and Zenaida A. Suayan (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Dec. 1973-Jan. 1974, v.57, nos.7-8, p.298-304. graphs, table, illus. 6 refs.

Prolonged exposure of treated filaments of *Cladophora* sp. to red light was effective in inducing akinetes to develop in either short or long days, although exposure of the organisms under a long-day regime (16 hrs light, 8 hrs dark for one month) gave higher values than those obtained during short days (8 hrs light, 16 hrs dark for one month). Low light intensities to as much as 35 ft candles also induced akinete development. The application of growth regulators, such as indoleacetic acid, gibberellic acid or kinetin, under blue light and ordinary white light showed no significant akinete production. The organism grown in red light with the addition of any of the growth regulators showed no further increase in akinete production indicating that maximum potential has been reached in red light alone. The effect of red light was explained in terms of a reduced rate of photosynthesis which could hasten ageing. Akinete differentiation is thus considered an unstable character for classification.

582.266:581.143
Algae - Development.
Akinete. Cladophora.

214. Akinete differentiation in Cladophora sp. III. Effects of ageing and related factors. Julia B. Pantastico and Zenaida A. Suayan (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Dec. 1973-Jan. 1974, v.57, nos.7-8, p.305-312. graphs, tables, illus. 6 refs.

Akinete development in *Cladophora* sp. was observed to increase proportionately with the ageing of the organisms. Mobilization of the cell contents was evident as akinetes developed. The organisms showed enhanced akinete development when grown in a medium containing D-L serine especially at a high concentration of 0.05 M. On the other hand, varying concentrations of ascorbic acid (5-50%) when added to the culture medium of *Cladophora* delayed senescence, hence, inhibited akinete development.

582.273
Algae - Classification. Rhodophyceae.

215. The marine benthic algae of Siasi Island and vicinity. III. Rhodophyta. Gavino C. Trono, Jr. (Natural Science Research Center, University of the Philippines, Quezon City). *Kalikasan,* 1974, v.3, no.2, p.83-97.

Presented is the first and most comprehensive report on the common macrobenthic red algae dealing with the taxonomy of 25 species of the Rhodophyta belonging to 19 genera, 12 families and 5 orders. Salient biological characteristics of the specimens are also included.

582.28:576.8.093
Entomophthora coronata.
Coconut milk as culture medium.

216. The use of coconut milk (gata) and other media in the culture of Entomophthora coronata. B. P. Gabriel and L. E. Padua (College of Agriculture, UPLB, College, Laguna). *Kalikasan,* 1974, v.3, no.2, p.107-112. tables. 5 refs.

Five strains of *E. coronata* (Constantin) Kevorkian were cultured on 14 different media made from locally available materials. Growth rate was faster and spore production was more abundant on media with coconut milk than on media without coconut milk. There was no significant differences in the growth rate between varying concentrations of coconut milk and age of inoculation. The maximum yield of mycelia was obtained between 2 1/2 and 5 days after inoculation. No significant increase in dry weight in the mycelium was observed between 10 and 15 days after inoculation in all concentrations.

582.28:581.14
Fungi - Development.
Colletotrichum falcatum.

217. Growth and sporulation of Colletotrichum falcatum Went on different temperatures, pH and light conditions. Hamiz Uddin Ahmed (Agriculture Division, Atomic Energy Centre, Ramma, Decca 2, Bangladesh) and Gil G. Divinagracia (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Feb.-March 1974, v.57, nos.9-10, p.379-382. tables. 13 refs.

Observations revealed that *C. falcatum* grew at a temperature range of 10°-35°C, the optimum of which was at 25°-30°C and at pH 3.0-10.0 with the optimum at pH 5.5-6.0. The fungus sporulated well at a temperature range of 20°-30°C and best at 25°C. Maximum sporulation was at pH 6.0-6.5. Light had no effect on growth but significantly enhanced sporulation.

582.394(083.7)
Ferns - Nomenclature.

218. Nine new fern names. M. G. Price (College of Sciences and Humanities, College, Laguna). *Kalikasan,* 1974, v.3, no.3, p.173-178.

Three fern genera distinguished by dimorphism are united to their nondimorphic presumed generic archetypes, *Hemigramma* Christ to *Tectaria* Cav., *Dendroglossa* Presl to *Colysis* Presl, and *Drymoglossum* Presl to *Pyrrosia* Mirbel. 8 new combinations are proposed in these genera, plus one in Schellolepis J. Sm.

582.394(914)
Ferns - Characterization.

219. New Philippine ferns. R. E. Holttum (Royal Botanic Garden, Kew, England). *Kalikasan,* 1974, v.3, no.3, p.196-197.

Described as new species are *Elaphoglossum calanasanicum* and *Pronephrium solsonicum. E. ophioglossoides* was also identified with *Acrostichum ophioglossoides* which was transferred to *Elaphoglossum,* placing *E. merrillii* Christ as a synonym.

582.394(914)
Ferns - Characterization.
Cheilanthes dilimanensis.

220. A new species of Cheilanthes. P. M. Zamora (College of Arts and Sciences, University of the Philippines, Quezon City). *Kalikasan,* 1974, v.3, no.3, p.193-195. illus. 3 refs.

Described as new is *C. dilimanensis* Zamora. This species of ferns found in a highly urbanized area in Quezon City grows luxuriantly from June to Dec. and scarsely from Jan. to May. It can be distinguished from *C. tenuifolia* and *C. javensis* by its narrow deltoid laminae and spinulose spores.

582.394(914)
Ferns - Characterization. Tectaria.

221. Three new ferns of the genus Tectaria. M. G. Price (College of Agriculture, UPLB, College, Laguna). *Kalikasan,* 1974, v.3, no.2, p.113-120. illus.

Described in detail are 3 new species of *Tectaria* (Filices, Aspidiaceae), namely *T. athyrtosona, T. stalactica* and *T. tabonensis.* They are believed to be of Philippine endemics.

582.542:581.143
Rottboellia exaltata.

222. Studies on the biology of Rottboellia exaltata. Demetria B. Fernandez (College of Agriculture, UPLB, College, Laguna). *Kalikasan*, 1974, v.3, no.3, p.166-172. graph, tables.

Observations made on *R. exaltata* seeds sown in pots revealed that the growth pattern of the weed followed the typical sigmoid curve only when stem height was measured. A plant produced an average of 99.5 tillers, 272-948 spikes and 10,668-16.541 seeds in one growing period. However, 5310-9031 spikelets (seeds) borne at the tip of the spikes and formed at the late life cycle of the plant were sterile. Flowering varied from 47 to 154 days indicating that the plant is photoperiod-sensitive. The tallest plants were obtained from plants sown in April and the shortest were those sown in Nov.

582.542:581.52
Themeda.

223. Studies on the genus Themeda. Percy E. Sajise, Norma M. Orlido, Lorenzo C. Castillo and Joveno S. Lales (College of Sciences and Humanities, UPLB, College, Laguna). *Kalikasan*, 1974, v.3, no.1, p.71-82. graph, tables, illus. 8 refs.

Five species of the genus *Themeda* (Gramineae) identified during an intensive vegetation analysis of Philippine grassland were, *T. arundinacea* (Roxb.) Ridley, *T. x intermedia* (Hack.) Bor, *T. caudata* (Nees) Dur. & Jacks., *T. villosa* (Poir.) Dur. & Jacks and *T. triandra* Forssk. *T. triandra* was found the most dominant and economically important species in the native grassland. Based on its autecological responses, the specimen has a high degree of persistence in a given area due to its high tillering rate which can offset the low filled spikeless and germination percentages. The wide ecological adaptability of the species is enhanced by its tolerance to wide ranges of environmental factors, such as soil pH conditions and grazing intensities.

582.972(914)
Mussaenda.

224. Cultivated mussaendas in the Philippines. Grace R. Price (College of Agriculture, UPLB, College, Laguna). *Kalikasan*, 1974, v.3, no.1, p.37-55. 9 refs.

Described are 15 ornamental mussaendas (Rubiaceae) contrasted in a key and for the first time documented with type specimens. Of the species, 3 were of African species, 2 were of Philippine species and 10 were hybrids developed at the University of the Philippines, Los Banos (Laguna).

582.998:581.13.14
Chromolaena odorata.

225. The biology of hagonoy [Chromolaena odorata (L) R. M. King and H. Robinson]. I. Pattern of growth, flowering behavior, and nitrate accumulation. P. E. Sajise, R. K. Palis, N. V. Norcio and J. S. Lales. *Philippine Agriculturist*, Feb.-March 1974, v.57, nos.9-10, p.364-372. graphs, tables. 8 refs.

Growth pattern studies of *C. odorata* showed that the plants maintained a monopodial growth 2 mo. after germination and produced extensive lateral branching 4 mo. after. The flowering response of the species to varying photo-periods indicated that it can flower over a wide range of daylength conditions of 10-14 hrs although shorter daylength of 10 hrs greatly enhanced flowering. Nitrate accumulation as high as 5-6 times above the toxic level of 2% was observed in the stem of young regrowths from plants growing in fertile soil but not beyond the toxic level in tissues of older plants or old regrowths from plants growing in fertilized or unfertilized soil. The high nitrate level in tissues of young regrowths of *C. odorata* is a possible toxic factor affecting livestocks and other herbivores.

ZOOLOGY

595.384.591.5
Crabs - Habits and behavior.

226. The sponge Dromidiopsis dormia as predator of the Crown of Thorns starfish. A. C. Alcala. *Silliman Journal*, Second Quarter 1974, v.21, no. 2, p.174-177. illus. 9 refs.

Sponge crab is the 4th predator of the Crown of Thorns starfish (*Acanthaster planci*) to be reported in scientific literature. It has been observed to feed on the starfish 3 times in nature and 4 times in an aquarium. It punctures the aboral part of the prey's control disk and picks soft tissues with its pincers. In the aquarium it could devour the soft tissues of the control disk in 1 1/2 hrs. The crab, which is found in Dumaguete coral reefs, is brown with a velvety texture and carries a flat sponge on its back for protection.

595.76(914)
Beetles.

227. Lampyrid beetles of the Philippines. I. The genus Vesta Casternau, Masataka Sato. *Philippine Scientist,* 1974, v.11, p.66-70. illus.

The type-species *V. chevrolati* Casternau described in detail is the most recently published species in the Philippines. Other 8 *Vesta* genera are also reported as of Philippine range, namely *V. basalis* Gorham, *V. fimbriata* Olivier, *V. xanthura* Olivier, *V. menetriesi* Motschulsky, *V. proxima* Gorham, *V. rufiventris* Motschulsky, *V. flavicolis* Motschulsky and *V. rotundata* Olivier. Key to the Philippine *Vesta* species is given.

595.76(914)
Beetles.

228. A new Lepturine beetle from Mindanao Island, Philippines. Nobuo Ohbayashi and Masataka Sato. *Philippine Scientist,* 1974, v.11, p.57-59. illus. 2 refs.

Described in detail is a recently discovered species in Mt. Apo, *Strangalia (philippinostrangalia) apoensis.* It can be isolated distinctly as a subgenus, *Philippinostrangalia* from another *Strangalia* species suggesting the possibility that the species may be a relic living in the high mountains on Mindanao Island.

595.771:591.5(914)
Mosquitoes - Habits and behavior.

229. On Philippine mosquitoes. XIV. Biting-cycles of some species in their natural forest habitat, with particular reference to Aedes albopictus. Ruben G. Basio and Lolita Santos-Basio (Dept. of Health, Manila). *Kalikasan,* 1974, v.3, no.3, p.155-165. graphs, tables. 22 refs.

Studies conducted at the lower slopes of Mt. Makiling (Laguna) showed that the human-bait catches were predominated by *A. albopictus* (Skuse) on all elevations but mostly at the lowest elevation of 38 ft. The biting cycle of the species was markedly bimodal; a minor peak between 0900 and 1000 hrs and a major peak between 1600 and 1700 hrs. The hourly peaks of attraction for both sexes of the vector species were almost identical at all elevations.

Discussed briefly are the biting habits, disease associations and relative importance in the study area of the 4 medically important species, namely *A. aegypti* (Linn.), *A. niveus* (Ludlow), *A. scrutellaris* (Walker) and *Mansonia uniformis* (Theobald) and 2 other species *Armigeres baisasi* Stone & Thurman and *A. malayi* (Theobald).

595.771:591.52
Mosquitoes - Breeding.

230. Investigations on the ecology and biology of Aedes aegypti and A. albopictus: seasonal incidence and larval breeding preference. Nonette L. Jueco and Benjamin D. Cabrera (Institute of Public Health, University of the Philippines, Manila). *Kalikasan,* 1974, v.3, no.3, p.187-192. tables. 5 refs.

The single-larva collection method was used in a 1-yr survey of mosquitoes at the University of the Philippines (Quezon City) campus. Results showed no difference in the relative prevalence of the 2 species in the area and between indoor and outdoor containers as breeding habitats. The average Breteau index, the number of containers positive for *A. aegypti*/100 houses examined, for all seasons was 13.2 indicating a risk in dengue hemorrhagic fever transmission on the campus.

595.78:591.34 575.12:595.78
Butterflies.

231. A study of the immature stage of Papilio rumanzovia hybrids between P. rumanzovia and P. memnon. Shigeru A. Ae. *Philippine Scientist,* 1974, v.11, p.60-65. table, illus. 4 refs.

Discussed is the morphology of the immature stages of *P. rumanzovia* in comparison with the immature stages of *P. memnon, P. polymnestor* and *P. ascalaphus.* The characteristics exhibited at the earlier immature stages of *P. rumanzovia* were almost indistinguishable from those of *P. memnon* and *P. polymnestor* but the saddle mark of *P. ascalaphus* is larger and whiter than that of *P. rumanzovia* and the other 2 species. The 5th instar larvae of *P. rumanzovia* are easily distinguished from those of the other 3 species by the continuance of both saddle marks. Hybridizations between *P. rumanzovia* and *P. memnon* produced only F_1 males which have difficulties in emerging. F_1 hybrids between *Papilio* species may be produced extensively by hand-pairings, but they are only fertile among species that belong to a group of closely related species.

MEDICAL SCIENCES

PHYSIOLOGY

612.12:616-001.17
Burns - Blood.

232. Monitoring the blood chemistry of thermal burns with the sequential analyzer (SMA 18/60) as a guide in treatment. Mario Oca (John F. Cotton Hospital, MERALCO Complex, Pasig, Metro Manila). *Bulletin of the J. F. Cotton Hospital,* 1974, v.7, p.15-30. graphs, tables. 3 refs.

Results of the study conducted on 14 injured thermal burned cases utilizing the 18 parameters of blood chemistry revealed that: 1) potassium, uric acid, creatinine, total bilirubin, inorganic phosphorus and blood urea nitrogen have significant changes in the serum levels; 2) carbon dioxide, sodium, total protein, albumin, calcium and cholesterol exhibited a decrease in serum values; 3) glucose, alkaline phosphates, creatinine phosphokinase, lactate dehydrogenase and glutamic oxalacetic transaminase have an increase of 5-12 times the normal serum values; and 4) chloride had transient increase in the serum level to return to normal level after the 3rd or 4th day.

612.432:618.2(=914)
Gonadotropins, Chorionic - Urine.
Pregnancy.

233. Immuno-assay of chorionic gonadotropins in normal pregnant Filipino women. Gloria T. Aragon, Conrado Ll. Lorenzo, Jr., Rosalina S. Suarez (College of Medicine, University of the Philippines, Manila) and Arturo A. Librea (Institute of Public Health, University of the Philippines, Manila). *Acta Medica Philippina,* ser. 2, July-Sept. 1974, v.10, no.3, p.79-87. graphs, tables. 21 refs.

The semi-quantitative method of immunoassay utilizing both the latex agglutination inhibition (Gravindex Slide test) and the hemagglutination methods (UCG Titration) was employed in demonstrating urinary chorionic gonadotropin levels in 10 normal pregnant Filipino women, from the 40th day of amenorrhea until delivery at the 36th week gestation. Assays were made on 12-hr urine samples collected at 5-day intervals. The detectable levels of human chorionic gonadotropin (HCG) were obtained with the slide test by the 40th day of amenorrhea from the first day of the last normal menstrual period. This level gradually increased up to the 60th day and reached the highest mean value of 468,600 I.U/12 hrs from the 61st to 65th day of amenorrhea and lasted to about the 90th day and dropped to relatively low levels through out the rest of pregnancy. The values obtained for normal pregnancy indicate a curve or trend in HCG in normal pregnancy. However, they are much higher than those previously reported.

612.46:618.2(=914)
Pregnanediol - Urine.

234. Pregnanediol values in normal non-pregnant and pregnant Filipino women. Gloria T. Aragon, Conrado Ll. Lorenzo, Jr., Adela Casabar (College of Medicine, University of the Philippines, Manila) and Arturo A. Librea (Institute of Public Health, University of the Philippines, Manila). *Acta Medica Philippina,* ser.2, July-Sept. 1974, v.10, no.3, p.97-102. graphs, tables. 12 refs.

Pregnanediol assays using a modified Klopper method on 16 normal non-pregnant subjects were done daily from the 4th day following the onset of menstrual bleeding to the next menstrual flow, and every 5 days on 11 normal pregnant women starting from the 40th day after the first day of the last normal menstrual period till delivery at term. In normal non-pregnant subjects the mean values of pregnanediol rose slowly from the onset of menstrual cycle and reached the peak value about the 22nd day, then gradually decreased up to the 30th day of the cycle. Among the normal pregnant subjects, the pregnanediol level rose steadily from the 40th day (after the first day of menstrual flow) to the 280th day of amenorrhea. The range and mean actual values obtained were comparable to other reports and depicted the same trend or curve during the normal menstrual cycle and pregnancy. Assays for normal pregnancy did not show any drop prior to the onset of labor.

612.647.015
Fetus - Physiology. Amniotic fluid-
Analysis.

235. Amniotic fluid studies for evaluating the fetal status. Gloria T. Aragon (Philippine General Hospital, Manila). *NRCP Research Bulletin,* June 1974, v.29, no.2, p.125-147. tables. 42 refs.

A total of 262 amniotic fluid samples obtained from 153 normal and 91 pathologic subjects were analyzed. Observations revealed significant correlation of the cellular maturity indices with the ages of gestation and also with the term-sized newborns but not with those of premature birthweights, or with dysmature features. The creatinine and bilirubin levels as a measure of fetal maturity, showed a correlation of 60-70% and 70-80%, respectively, with gestation age, birthweights and physical features in both normal and abnormal groups. As to the fetal condition, the amniotic fluid discoloration appeared to be associated with poor fetal conditions. The lactic acid and glucose levels showed direct and inverse relationships, respectively, with the poor state of newborns. In the few cases studied, the surfactant titer showed a direct correlation with the respiratory status of the neonates. Urea and the total proteins did not show any significant correlation with the condition of the newborns.

612.843.31:616-083
Color perception - Physiology.
Nursing care.

236. Colors and their effects on patients. Luz T. Mariñas and Estela D. Marpuri. *Santo Tomas Nursing Journal,* April 1974, v.12, no.2, p.45-50. tables. 5 refs.

The studies on 20 females and 20 males aged 5-60 yrs were conducted to determine the color preference of male and female patients to be used as a tool in nursing. Results revealed that warm colors (red and yellow) evoked positive response among female patients in contrast to the male who preferred the cool colors (blue and green). Among the pediatrics the most preferred colors are red and yellow while the older group selected blue and green.

PHARMACOLOGY. TOXICOLOGY.

615.777
Anti-infective agents - Pharmacodynamics.

237. Clinical evaluation of 1% Irgasan (surgiclean) as compared to Hexachlorophene (Phisohex). Ruben E. Siasoco (UE-RM Memorial Medical Center, Quezon City). *Philippine Journal of Microbiology and Infectious Diseases,* Jan.-June 1974, v.3, no.1, p.33-37. tables. 8 refs.

Results of the study conducted on 30 healthy Filipino volunteers revealed that Irgasan is effective even in short-term scrubbing, and a very potent antimicrobial even at low concentrations against common contaminants (both gram-positive and gram-negative forms and strains of fungi). It was also found to be significantly superior over Hexachlorophene not only statistically but also clinically in degerming procedures.

615.9:641
Food poisoning.

238. Toxicants naturally occurring in foods. Luz Oliveros-Belardo. (Philippine Women's University, Manila). *Philippine Journal of Nutrition,* April-June 1974, v.27, no.2, p.1-6. 48 refs.

Discussed are some poisonous agents naturally found in local foods especially of plant origin, namely hydrocarbons, vitamins, anti-vitamins, protein, fat and carbohydrate, flavorants, xanthines, goitrogens, oxalates, purines, glycosides and alkaloids. There is no cause for alarm since these toxicants are present in minute amounts and do not produce hazardous effects. Some foods which cause various unexplained physiological effects in man due to their purgative, emetic, estrogenic aphrodisiac and carcinogenic components are given.

DISEASES. PATHOLOGY AND MEDICINE

616-006.55:616-089(=914)
616.45-02(=914)
Adenoma - Surgery.
Hyperaldosteronism - Etiology.

239. A cause of primary aldosteronism (Conn's syndrome) in two Filipinos. Ludgerio D. Torres, Ernesto Palanca, Rodolfo C. Soto, Avenido P. Aventura and Ophelia S. Manlapit. *Philippine Journal of Cardiology,* July-Sept. 1974, v.2, no.3, p.16-21. graph, illus. 10 refs.

Presented are 2 female patients with adrenal adenoma producing primary aldosteronism. The first case showed persistent hypokalemia, alkaline urine and hypertension, while the second case developed cerebrovascular accident in the form of right-sided hemiporesis. Surgical removal of these adrenal adenoma restored the patients to near normalcy.

616.12-002.7:616-053.2(=914)
Rheumatic heart disease.
Rheumatic fever.

240. A study on rheumatic fever and rheumatic heart disease among 208 Filipino children. Luis M. Mabilangan and Benjamin A. Mojica (UP-PGH Medical Center, Manila). *Philippine Journal of Cardiology,* July-Sept. 1974, v.2, no.3, p.4-12. graphs, table. 17 refs.

Results revealed predominant complaints of carditis heart failure or carditis with arthritis noted to be an integral part of the history but not as frequently observed as a lone entity.

The age peak incidence was at 10-12 yrs. An increasing frequency of early onset of carditis and valvulitis among children was also noted. A positive family history in 10% of the cases was observed to be more significant than the incidence of chorea, erythema marginatum and subcutaneous nodules combined. Laboratory tests in the diagnosis are discussed and were found to be very helpful guides in the diagnosis but cannot and should not supplant clinical diagnosis.

616.23-006.2:616-07
Bronchial diseases - Diagnosis.
Cysts - Diagnosis.

241. Bronchogenic cysts. (A report of two cases from the Quezon Institute). Vicenta Pita de Gracia and Conrado Gutierrez. *Chest Diseases*, Dec. 1974, v.9, no.2, p.23-27. illus. 3 refs.

Histologically proven cases of bronchogenic cysts were seen in male and female patients aged 25 and 22 yrs, respectively, presenting an oral and globular density in their chest x-rays. Pre-operative diagnosis, however, revealed a benign mediastinal tumor in the first case and a benign intrapulmonary newgrowth or an encapsulated effusion in the second case. Diagnosis was made only after surgery, despite a thorough preoperative work-up.

616.23-006.6
Carcinoma, Bronchogenic.
Neoplasm metastasis.

242. Unusual metastatic sites of bronchogenic carcinoma. Enrique M. Garcia (Quezon Institute, Quezon City). *Chest Diseases*, Dec. 1974, v.9, no.2, p.19-22. 3 refs.

Five cases of bronchogenic carcinoma are presented with histologically proven metastases to the submental gland, the scalp and big toe, the contralateral deltoid muscle and subcutaneous tissues in the chest and abdomen. Observations revealed that the patient suspected of having cancer of the lung should be examined not only by auscultation of the lungs and heart, and palpation of the neck for possible enlarged glands, but also by a thorough palpatory examination of the entire surface area of the patient, from the scalp to the toes. Any suspicious lump should be removed and examined histologically before proceeding to more expensive diagnostic procedures, such as thoracotomy and bronchoscopy.

616.235-072
Bronchoscopy.

243. Bronchoscopy in the Quezon Institute (A review of 22,531 bronchoscopic examinations done during a 25-year period (1947-1972). Heraldo del Castillo, Jesus C. de Jesus and Glorioso V. Saturay. *Chest Diseases*, Dec. 1974, v.9, no.2, p.7-12. tables. 4 refs.

Majority of the patients examined were males (11,455), followed by females (9692) and pediatric cases (1384), with ages ranging from 8 mo. old to 90 yrs old. Of the 520 bronchial biopsies for suspected pulmonary newgrowths, 229 bronchial bites gave positive malignant findings and 291 gave negative results. The most common types of lung malignancy was found to be epidermoid carcinoma, followed by the undetermined and anaplastic carcinoma types. Concentrated examination of the bronchial washings for AFB was positive in 5.22%. Only 6 deaths were recorded, indicating that bronchoscopy is a relatively simple and safe procedure.

616.24-007
Pulmonary veins - Abnormalities.

244. Scimitar syndrome: a report of two cases. Ludgerio D. Torres, Rodolfo C. Soto, Homobono B. Calleja, Avenilo P. Aventura and Edna Garayblas. *Philippine Journal of Cardiology*, July-Sept. 1974, v.2, no.3, p.13-15. table, illus. 7 refs.

The cases described occurred in female patients aged 23 and 28 yrs. Chest x-ray in the first case was interpreted as dextrocardia and with the scimitar vein overlapping the right border of the heart while the second case was interpreted to have RVH, with increased pulmonary vascularity and scimitar vein running downwards parallel to the right border of the heart. Recommended cardiac catheterization was refused by the first patient but done in the second patient who still underwent surgery and was asymptomatically discharged.

616.248:615.72
Asthma - Drug therapy.
Bronchodilator agents - Pharmacodynamics.

245. Berotec - a new bronchodilator. Tiburcio A. Leonin, Jr., Giovanni C. Ong, Melodina O. Leyson and Edgardo Julian (Veterans Memorial Hospital, Quezon City). *Filipino Family Physician*, April-June 1974, v.12, no.2, p.30-32. 7 refs.

A clinical trial on 18 chronically recurrent asthmatic patients showed that Berotec at a dosage of 1/2 tablet 3 x day for 5 consecutive days relieved all the patients of their asthmatic symptoms. Only 3 cases manifested initial transient side-reactions with elevation of blood pressure and increase in pulse rate. However, relief of these side-reactions was obtained after 2 days of continued administration of the drug.

616.366-007:616-089
616.361-089
Gallbladder - Abnormalities.
Common bile duct - Surgery.

246. Agenesis of the gallbladder associated with benign stricture at the ampulla of vater: a case report. Leopoldo Lazatin, Jocelyn Dizon and Lydia Tecson (UP-PGH Medical Center, Manila). *Bulletin of the J. F. Cotton Hospital,* 1974, v.7, p.74-78. illus. 10 refs.

Congenital absence of the gallbladder and benign stricture of the common bile duct without cholelithiasis in a 37-yr-old female is described. The patient had a history of jaundice when she was 13 yrs old. The preoperative diagnosis was chronic cholecystitis, non-calculus. Common bile duct exploration and choledochoduodenostomy were performed followed by tube duodenostomy. The operation proved to be successful and the patient was finally discharged on the 21st post-operative day.

616.379-06(=914)
Acidosis, Diabetic.

247. Keto-acidosis among Filipino diabetics. Ricardo Fernando (Mary Johnston Hospital, Manila). *Journal of the Philippine Medical Association,* May-June 1974, v.50, nos.5-6, p.101-110. tables. 23 refs.

Seventy-two of the diagnosed 312 diabetic patients showed glycosuria of which 12 demonstrated the presence of ketone bodies. 9 cases showed small amounts of ketones while 3 cases manifested significant ketonuria. However, there was no case of severe diabetic ketoacidosis indicating that diabetes in the Philippines results in less and milder ketosis.

616.438-006(914)
Thymoma.

248. Experiences with thymoma in the Philippines. Jesus C. de Jesus, Justino Samson and Glorioso V. Saturay. *Chest Diseases,* Dec. 1974, v.9, no.2, p.13-18. tables, illus. 9 refs.

Presented are 35 cases of thymic tumors operated on in Quezon Institute and V. Luna Medical Center (Quezon City) from 1958 to 1973. Symptoms observed were chest oppression, weak upper and lower extremities, superior vena caval syndrome, metastasis of the liver, associated manifestations, such as marked anemia, joint pains and progressive weakness. Though this tumor is commonly associated with myasthenia gravis only 3 of the patients had myasthenic symptoms. Characteristically, these tumors occur in the anterior mediastimum in a position to the aortic arch and base of the heart but with no peculiar or pathognomonic features which would permit a diagnosis on the basis of the roentgenologic findings alone.

Since there is no clinical and roentgenological basis for the accurate pathological diagnosis of mediastinal tumors, exploratory thoracotomy is indicated for patients whose general condition will safely allow such an operation.

616.831:616.13/.14-007
Cerebral arteriovenous malformations.

249. Arterio-venous malformations of the brain (Experiences at the John F. Cotton Hospital). Roel A. P. Romero and Ramon S. Sutter (John F. Cotton Hospital, MERALCO Complex, Pasig, Metro Manila). *Bulletin of the J. F. Cotton Hospital,* 1974, v.7, p.70-73. table. 3 refs.

Presented are the clinical data of 4 cases of cerebral-arterio-venous malformations (AVM). The first 2 cases presented a minor hemorrhage with only transient loss of consciousness with slight or no neurologic deficit, the 3rd patient had a major hemorrhage accompanied by persistent unconsciousness and the 4th patient had a stroke-like syndrome which was previously diagnosed as having cerebral arterial spasm or transient ischemic attacks. Cerebral angiography was done in making a definitive diagnosis, aside from using ECG, ECHO and brain scanning tests. Operation was performed on patients 1 and 4 with favorable results and non-operative treatment, for the other patients.

616.932:615.73
Cholera - Drug therapy.
Tetracyclines - Therapeutic use.
Trimethoprim - Therapeutic use.

250. A comparative study of Trimethoprim-sulfamethoxazole and Tetracycline HCl in the treatment of Cholera El Tor. Cesar V. Uylangco and Virginia B. Soriano (San Lazaro Hospital, Manila). *Journal of the Philippine Medical Association,* May-June 1974, v.50, nos.5-6, p.111-

115. tables. 4 refs.

Studies conducted on 30 patients given Trimethoprim-sulfamethoxazole (Bactrim) and 30 patients given Tetracycline HCl (Achromycin) revealed that both drugs exhibited parallel effectiveness in the cure of Cholera El Tor. However, Bactrim effected a more rapid disappearance of the vibrio than Achromycin, making it the more effective antibiotic for the therapy of Cholera El Tor.

616.986-097 576.856.097
Antibodies, Bacterial - Analysis.
Hemagglutination tests.
Treponema pallidium - Immunology.

251. Antitreponemal antibodies against Treponema pallidum as measured by the quantitative microhemagglutination test. Eloisa D. Madraso, Magdalena P. Villafria, Leandro M. Ibarra and Veronica F. Chan. *Acta Medica Philippina,* ser.2, Oct.-Dec. 1974, v.10, no.4, p.127-130. tables. 6 refs.

Comparative reactivity of 235 human sera by the quantitative micro *T. Pallidum* hemagglutination (TPHA), venereal disease research laboratory (VDRL) and by Kolmer complement fixation tests (KCF) showed serum reactivity in 8.02%, 8.5% and 7.22% of the test groups, respectively. While TPHA and VDRL showed about the same percentages of reactivity, TPHA detected false positives among 25% of VDRL reactors and 17.65% of KCF reactors. TPHA also detected antitreponemal antibodies in 1.86% of VDRL nonreactors which are rare cases of syphilis which at the early stages of the disease show no Wasserman antibodies but are seropositive for antitreponemal antibodies. Results showed that TPHA is as reactive as VDRL and more specific than either VDRL or KCF, indicating that TPHA can be used as a single serologic diagnostic test for syphilis, which may prove more economical and less time consuming.

616.988.7-097
Dengue virus.

252. Studies on human dengue virus infections. I. The 7S and 19S immunoglobulin responses. Veronica F. Chan and Lourdes E. Campos (Institute of Public Health, University of the Philippines, Manila). *NRCP Research Bulletin,* June 1974, v.29, no.2, p.230-235. table. 7 refs.

The study was conducted on 5 cases of human dengue virus infections-4 with classical dengue fever, and one with hemorrhagic and shock manifestations. Both Ig classes which simultaneously appeared on the 5th day of illness attained peak titers from 10th to 14th day and tended to decline after the 2nd week. After a month, 19S Ig was almost nil, while 7S Ig persisted at fairly high level. During the course of illness 7S Ig levels were greater by 8-128 times than the 19S Ig levels. It was further noted that 19S Ig levels were produced in primary and secondary infections.

616.993-08
Intestinal diseases, Parasitic - Occurrence.
Capillariasis.

253. Recurrences in human intestinal capillariasis. Carlos N. Singson (Southern Ilocos Sur Emergency Hospital, Ilocos Sur). *Philippine Journal of Microbiology and Infectious Diseases,* Jan.-June 1974, v.3, no.1, p.7-13. tables. 10 refs.

Recurrences of 812 capillariasis patients or 67.5% of 1219 cases treated with Thiabendazole and Levo-tetramisole were more commonly encountered among incompletely treated cases than among those who finished the long course of treatment. It was observed that recurrences following the short course of treatment occurred at shorter interval while that at long period of treatment, at longer interval; and that they had no relation to severity of illness nor to reinfection, but they are more likely due to a relapse.

616.995.1:615.73
Hookworm infections - Drug therapy.
Pyrantel.

254. The treatment of hookworm infection or disease with a single double dose of Pyrantel pamoate: final report. Pedro P. Chanco, Jr., Ma. Julieta Y. Vidad (University of Santo Tomas, Manila) and Adolfo B. Bellosillo (Roxas City, Capiz). *Philippine Journal of Microbiology and Infectious Diseases,* Jan.-June 1974, v.3, no.1, p.25-32. tables, illus. 2 refs.

Of the 122 cases treated with a single double dose of Pyrantel pamoate (20 mg/kg) on the first post treatment stool examination, 86.88% and 73.77% were parasitologically cured as assessed by Direct Fecal Smear and Zinc Sulfate Centrifugal Flotation, respectively, while on the second post treatment the efficacy was 86.06% and 72.13%. The cure rate in 85 patients with only one post treatment stool examination was 100% on Direct Fecal Smear and 82.35% on Zinc Sulfate Centrifugal Flotation. Pyrantel pamoate was found to be practically devoid of any side effects even when given on 3 successive days in severe hookworm disease and was more convenient to administer necessitating no special preparations or diet restrictions.

OPHTHALMOLOGY

617.735:616-07:616.379
Retinal diseases - Diagnosis.
Fluorescence angiography.
Diabetic retinopathy - Complications.

255. Fluorescein angiographic findings in early diabetic retinopathy. Pacifico V. de Ocampo, Jr. and Maximo C. Martinez (Philippine Eye Research Institute, University of the Philippines, Manila). *Philippine Journal of Ophthalmology,* July-Sept. 1974, v.6, no.3, p.99-100. illus. 2 refs.

The diagnosis of early macular edema by fluorescein angiography in diabetic patients with retinal involvement affords prompt detection of the earliest change in diabetic retinopathy, such as demonstrating the areas of microaneurysm and alteration in capillary permeability. Hence, therapeutic measures such as laser therapy can be applied early and easily to prevent occurrence of visual disturbance. Fluorescein angiographic findings have also shown that improvement of visual acuity is correlated with the reduction in the amount of demonstrable edema or exudate in the macular and that a good macular perfussion is usually associated with high resolution of macular edema.

Since this blinding disease can be controlled by early detection and prompt laser application, test should be done to some diabetic patients especially those who have no visual complaints.

617.735:616.379:616-085
Diabetic retinopathy - Therapy.

256. The treatment of diabetic retinopathy. Vicente T. dela Paz, Jr. (Cardinal Santos Memorial Hospital, San Juan, Metro Manila). *Philippine Journal of Ophthalmology,* July-Sept. 1974, v.6, no.3, p.101-102. 10 refs.

Treatment of diabetic retinopathy includes pituitary oblation, use of Argon laser and scleral bucklings and photocoagulation. If only to delay the onset of blindness among diabetics, photocoagulation is considered the best mode of therapy against the disease. It eliminates areas of surface proliferation and decreases permeability of small vessels. This therapy is proven valuable in early and moderately advanced proliferative diabetic retinopathy or when chronic macular edema is present.

All these therapeutic measures, however, are difficult to assess because of the tendency of the retinopathy to wax and wane which must be considered in accurately recording and evaluating results of therapy.

617.735:616.379(=914)
Diabetic retinopathy.

257. Diabetic retinopathy among Filipinos. Corazon C. Estrella and Ricardo E. Fernando (Mary Johnston Hospital, Manila). *Philippine Journal of Ophthalmology,* July-Sept. 1974, v.6, no.3, p.95-98. graph, tables. 4 refs.

The study involved ophthalmoscopic and tonometric examination of 115 known diabetic patients of both sexes, the greater percentage of which were found between the ages of 41 and 70 yrs. 40% were found to have fundus changes characteristic in which angiopathic complications predominated. Exudates and proliferative changes also occurred. Of those with diabetic retinopathy 30% were known diabetics for 1-5 yrs, 40% for 6-10 yrs and 30% for more than 10 yrs.

VETERINARY MEDICINE

619.616.35-089:636.7
Anus - Surgery - Dogs.

258. A comparative study of the effect of Plaster of Paris and liquified paraffin as aids in surgical removal of dog anal sacs. Felipe C. Garcia, Sr. and Gabriel R. Tabamo. *AUF Veterinary Digest,* Nov. 1973-March 1974, v.5, no.5, p.38-40, 42. tables.

The study was conducted on 20 native dogs equally divided into 2 groups. Results showed that with the use of the liquified paraffin, the anal sacs of the first group were all removed intact, while with the use of Plaster of Paris, only 5 dogs of the second group had their anal sacs removed. Easier dissection and faster healing times were also noted with the use of liquid paraffin than with the use of Plaster of Paris, indicating that liquified paraffin is a better aid than Plaster of Paris in the removal of anal sacs among dogs.

619:616.61/.62:636.21
636.21.089
Cattle - Diseases and pests.
Pyelonephritis - Cattle.
Cystitis - Cattle.

259. Bovine pyelonephritis and cystitis among country-bred Brahman cattle. Romulo N. Victuelles (National Meat Inspection Commission, Manila). *Animal Husbandry and Agricultural Journal,* Nov. 1974, v.9, no.11, p.8, 10. 2 refs.

Three cases presenting symptoms of intermittent bloody urine discharges were confirmed by the isolation of *Corynebacterium renale*. Negative response of the animals to intensive 5-day penicillin therapy was observed which may be due to the limited efficiency of the drug in supposedly advanced cases of infection.

Post-mortem findings revealed small tumor growth on the mucous membrane of the urinary bladder, but cut pieces of the tumors examined failed to isolate *C. renale* which was deduced to have been killed by the massive treatment of penicillin or the disease might have been the result of a synergistic action of the alleged toxin of the fern which is similar to that of bracken.

619:616.995.1:636.7 636.7.089
Ancylostomiasis - Therapy - Dogs.
Anthelmintics - Therapeutic use.

260. Clinical trials on the use of Citarin as an anthelmintic in canine ancylostomiasis. Alfredo Q. Lacuata and Zenaida C. Corpuz (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June-Dec. 1974, v.13, nos.1-2, p.242-250. table. 14 refs.

Forty naturally-infected dogs were clinically treated with Citarin administered subcutaneously at a recommended dose rate of one cc/10 kg body weight. The anthelmintic efficacy which varied regardless of sex and age, ranged from 0 to 100% with an average of 64.84%. No side effects were observed in the course of the study except for diarrhea in one dog during the treatment.

619:616.995.13:636.21 636.21.089
Cattle - Diseases and pests.
Trichostrongylus longispicularis.

261. Epidemiology of bovine parasitic gastroenteritis in the Philippines. III. Trichostongylus longispicularis (Gordon, 1933) a hitherto unreported intestinal nematode of cattle in the Philippines. Mario S. Tongson, Primo V. Arambulo, III and Violeta Trovela .(College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June-Dec. 1974, v.13, nos.1-2, p.163-169. table, illus. 9 refs.

Identification of the worms recovered from the duodenal contents of a female locally born Brahman cattle as *T. longispicularis* was based mainly on the morphology of the spicules, copulatory bursa and gubernaculum. The tips of the spicules were blunt and rounded and had a tongue-like, semi-transparent membrane projection. The longest worm (4.2 mm) recovered was much shorter than that previously reported. The size of the parasitic helminths, however, showed some degree of variability, depending on the density of worm population and degree of resistance developed by the host. No hook-like projections on the spicules were observed among the specimens studied.

619:636.7:615.781 636.7:615.781
Veterinary anesthesia - Dogs. Ketamine.

262. A study on the anesthetic effect of Ketamine hydrochloride (Ketalar) for caesarian section in dogs. Ariel Ocampo and Danilo Gantica. *AUF Veterinary Digest,* Nov. 1973-March 1974, v.5, no.5, p.13-17, 43. tables. 13 refs.

Studies showed that Ketamine HCl is a rapid but short acting anesthesia with an average induction period of 27.1 sec and a duration of recovery of 20-35 min. regardless of the number of Ketamine HCl doses administered. The experimental animals showed insignificant decrease in rectal temperature after the administration of the drug. A moderate increase in pulse rate was observed, indicating that Ketamine HCl does not lower blood pressure and decrease heart rate. All the bitches after operation were alive as well as the puppies born, maintaining their protective reflexes, such as coughing, sneezing and gagging. No side effects, such as anorexia, nausea or vomiting were noted in the experimental animals.

619:636.7:615.781 636.7:615.781
Veterinary anesthesia - Dogs. Xylazine.

263. A study on the effects of (Rompun) 2-(2, 6-Xylidino)-5, 6-dihydro-4H-1, 3-Thiazine hydrochloride at different dosage levels on native dogs. Francisca A. Ching and Jose C. Callanta. *AUF Veterinary Digest,* Nov. 1973-March 1974, v. 5, no.5, p.27-37. tables. 7 refs.

Rompun was administered intravenously with sedative dose level of 0.12 ml and 0.25 ml/50 kg body weight and with light and deep anesthesia dose level of 0.5 ml and 0.75 ml/50 kg body weight, respectively. Results showed that the light anesthesia dose level of 0.5 ml/50 kg body weight produced sedation in dogs. Under the sedative dose level, the cardiac function, respiratory and pulse rates, and temperature increased. On the other hand, under the anesthetic level, all the vital values decreased except the temperature. Corneal and palpebral reflexes were present in all dose levels, except when

Rompun was combined with Pentobarbital sodium. Rompun given daily for 10 days caused reduction of red blood cell, hemoglobin content and packed cell volume. The reduction in total white blood cells was attributed to the decrease of all leukocyte types. Findings also showed that Rompun can be recommended only for sedation during transit, radiographic examinations, treatment of body wounds and castration and as an adjunct to major operative anesthesia, and not for use in the manipulation of organs because it does not provide mascular relaxation in dogs.

ENGINEERING

621.744
Molds (for casting) - Permanent molds.

264. Permanent mold casting. Leonardo B. Santiago. *Philippine Metals*, April-June 1974, v.4, no.2, p.10-20. table, illus. 5 refs.

Discussed is the principle involved in the operation of permanent mold casting. It does not differ significantly from sand casting particularly with reference to that of minimizing turbulence in filling the mold and in establishing favorable thermal gradients that will promote directional solidification. The process involves the use of molds and cores which can be re-used over long periods in contrast with sand and shell molding processes where the molds and cores are broken up during shake downs. Permanent molding differs from true die casting in that no pressure is applied in filling the mold cavities except that of the weight of the metal being cast. It is usually chosen because of its better casting quality than those obtainable from sand casting, lesser use of material, lesser machining and finishing cost, lower labor skill requirement and higher productivity. However, its use is limited due to high cost of mold, non-productivity for small parts, difficult use for large castings and unsuitability for complex designs and shapes.

621.745
Cupola furnaces.

265. Cupola operation. Clarito M. Ilustre (Atlantic Gulf & Pacific Co., Manila). *Philippine Metals,* July-Sept. 1974, v.4, no.3, p.20-22. illus.

Discussed in detail is the principle of operation of a conventional acid slag, front slagger cupola. Among the major improvements incorporated in the basic design of the cupola are heated airblast, liningless steel shell with water spray, basic slag and water cooled protruding copper tuyeres. The cupola can be operated to melt high quality cast iron at low cost provided that close control of all the operational factors that determine the behavior of the cupola is undertaken.

AGRICULTURE AND FORESTRY

631.535:582.736
Plant propagation. Gliricidia sepium.

266. The vegetative propagation of madre cacao Gliricidia sepium (Jack) Steud. by cuttings using alpha naphthalene acetic acid (ANAA). Richard L. Delizo and Vito F. del Fierro, Jr. (Institute of Graduate Studies and Applied Research, Araneta University Foundation, Malabon, Metro Manila). *Araneta Research Journal,* Jan.-June 1974, v.21, nos.1-2, p.20-33. tables. 8 refs.

Results of the experiments utilizing 40, 60, 90 and 120 ppm concentrations of ANAA showed that the best water-ANAA concentration is 40 ppm with 72% survival. The period of greatest or most active sprout development of madre cacao cuttings occurred within the second and third week after planting.

Since no definite conclusion was given further studies of this nature should be conducted using a concentration of ANAA lower than 40 ppm and bigger-sized cuttings of different ages. Other timber-producing species may also be used to determine the feasibility of this study.

631.82:631.45:633.15
Lime - Field experiments.
Corn - Yield.

267. Lime requirements of an acidic soil grown to corn. H. P. Samonte and T. E. Aglibut (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Feb.-March 1974, v.57, nos.9-10, p.353-358. graphs, tables. 7 refs.

Experiments conducted on an acidic Lipa clay loam soil with a pH of 4.68 revealed that 16 tons/ha. of lime were needed to raise the pH to 6.5 and 22.6 tons to bring it to neutrality based on the modified Veitch method. Based on the field experiments, 3-7.5 tons/ha. of $CaCO_3$ gave significantly higher yields than the unlimed plot despite the low pH of 5.1-5.2. Lime rate at 22.5 tons/ha. decreased the yield despite the pH of 6.26 indicating that it is not necessary to lime the soil to pH 6.5 to increase corn yield.

632.4:581.14 581.14:632.4
Alternaria leaf spot.
Cruciferae - Diseases and pests.

268. Alternaria leaf spot of crucifers in the Philippines. Delfin B. Lapis and Ella T. Ricaforte (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Aug.-Sept. 1974, v.58, nos.3-4, p.121-137. tables, illus. 14 refs.

The fungus grew and sporulated well on various agar media, such as potato dextrose agar, V-8 juice agar, pechay decoction agar and Leonian agar. Temperature ranging from 16° to 32°C and pH 5-9 and intermittent light and darkness favored sporulation. The fungus remained viable within 12-14 mo. in infected leaves. Spores may be disseminated by wind, insects, water splashes and infected seeds.

Cross-inoculations showed that lettuce (*Lactuca sativa* L.) and weeds like *Cleoma ciliata* and *Portulaca oleracea* were relatively susceptible, and hence can serve as alternate hosts of the pathogen.

The disease may be controlled by sanitation, seed selection, crop rotation and use of fungicides, such as Fermate, Dithane Z-78, Zineb, Cuprox and Maneb at their recommended rates.

632.4:633.15
Fungi, Pathogenic. Corn downy mildew.
Sclerospora philippinensis.

269. Comparative virulence and gross morphology of isolates of Sclerospora philippinensis Weston on corn. S. Titatarn and O. R. Exconde (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Aug.-Sept. 1974, v.58, nos. 3-4, p.90-104. graph, tables. 11 refs.

The study was conducted on conidia of 7 isolates of *S. philippinensis* collected from 7 different places in the Philippines and inoculated on a synthetic variety of corn and on 5 inbreds, namely MO^{3}, MO^{5}, MO^{12}, MO^{13} and TX^{601}. Of these isolates, that from Musuan (Bukidnon) was the most virulent registering 85% systemic infection on the 6 test materials used; that from Lemery (Batangas) was the least virulent with 49%. High percentages of infection were observed on MO^{5} (80-100%) and MO^{12} (90-100%) corn varieties. The differences in percentage of virulence among the 7 isolates and infection to the test materials were highly significant. There was no relationship between conidiophore and conidial sizes and percentage of infection although the most virulent isolate showed the longest conidiophores.

632.951:595.1:591.34
Insecticides - Biological effect.

270. Comparative toxicities of certain insecticides to cabbage worm larvae (Crocidolomia binotalis Zell.). Lolita D. Dizon and Victoriano J. Madrid, Sr. (Institute of Graduate Studies and Applied Research, Araneta University Foundation, Malabon, Metro Manila). *Araneta Research Journal,* Jan.-June 1974, v.21, nos.1-2, p.9-19. graphs, tables. 7 refs.

Of the insecticides tested, Dedevap 50 was the most effective, used either as stomach or contact poisons. 100% mortality was effected 48 hrs after application followed by Vapona 25 E. C., 90%. For the duration of their residual toxicities Dedevap 50 was the longest, with 7-9 days, followed by Vapona 25 E.C. and Carbin 85 S, with 5-7 days and Sevin S, with 3-5 days. No apparent phytotoxic effect of each insecticide was observed.

632.951:632.982:595.73
Soil insecticides. Termites - Control.

271. Soil poisoning techniques. College, Laguna, Forest Products Research and Industries Development Commission, Dec. 1974. 2p. 4 refs. (Technical note no. 148)

Soil poisoning involves the building up of a toxic chemical barrier between the soil and the wooden parts of a building for the protection of wooden structure against the destruction of termites. It may be done before, during or after construction of the building depending upon the prevalent species of termites, incidence of infestation, suitability of the site for treatment, and soil type. The recommended insecticides and their respective concentrations for soil treatment are Aldrin, 0.5-1.0%, Dieldrin, 0.5-1.0%, Chlordane, 1.0-2.0% and Heptachlor, 5.0%. The procedure and rates of application are given.

Based on soil-poisoning experiments conducted at FORPRIDECOM, College (Laguna), 1% of Aldrin and Dieldrin remained toxic in the soil 6 yrs after. Results of similar studies conducted in foreign countries proved that all these insecticides applied at various concentrations and rates are still effective against subterranean termites after 17-21 yrs.

633.15:631.531:631.84
633.15:631.552
Corn - Field experiments.
Fertilizers - Field experiments.

272. A method for coating small lots of seeds of maize (Zea maize) with nitrogenous fertilizer for economy & yield. V. Iswaran and R. N. Vinas (Dr. Manuel L. Roxas Memorial Experiment Station, Bureau of Plant Industry, Lipa City). *Animal Husbandry and Agricultural Journal*, Nov. 1974, v.9, no.11, p.31. table. 4 refs.

Treatments used in the study were: 1) 200 kg N/ha. $(NH_4)_2SO_4$, 80 kg P_2O_5/ha. solophos and 60 kg K_2O/ha. muriate of potash; 2) 150 kg N/ha. $(NH_4)_2SO_4$, 80 kg P_2O_5/ha. solophos and 60 kg K_2O/ha. muriate of potash plus coating of seeds on a mixture of 10% $(NH_4)_2SO_4$, 10% $CaHPO_4$ and 2% gum arabic solution made into a paste with soil; and 3) the control. Results showed that full NPK application gave significant increase in yield over the control. No significant difference in yield was observed between treatments 1 and 2. Treatment 2, however offers a saving of 50 kg N/ha. $(NH_4)_2SO_4$ and following this method of split application later on will serve as pretest for nitrogen doses which vary during its growth depending on soil and climatic condition, thus maximizing the efficiency of fertilization.

633.15:632.35
Corn - Diseases and pests.
Pseudomonas alboprecipitans.

273. Bacterial leaf stripe of corn in the Philippines. Asuncion D. Karganilla and P. Q. Cabauatan (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist*, Aug.-Sept. 1974, v.58, nos.3-4, p.105-114. illus. 17 refs.

Of the 30 isolates tested for their pathogenicity on corn leaves, 20 produced the typical stripe symptoms which appeared initially as narrow, elongated and water soaked lesions. The lesions later became delimited, papery, translucent and brown to straw colored. Shredding of the infected leaves, characterized by the coalition of the stripes into blight at the advanced stage was observed. Based on its morphological, physiological and cultural characteristics, the causal bacterium is identified as *Pseudomonas alboprecipitans* Rosen.

633.18:581.135
Rice - Field experiments.
Abscisic acid.

274. Effect abscisic acid on growth and water uptake of rice plants. B. S. Vergara and A. Mazaredo (International Rice Research Institute, Los Baños, Laguna). *Kalikasan*, 1974, v.3, no.2, p.103-106. graphs, table. 8 refs.

Abscisic acid at 100 ppm applied as foliar spray to M1-48 and IR442-2-58 varieties 19 days after transplanting reduced water uptake, dry matter production and leaf area/plant. No phytotoxic effects were observed indicating that abscisic acid can be used as an anti-transpirant for rice plants. However, there was a significant decrease in plant height but an increase in tiller number only in IR442-2-58.

633.18:581.54:631.45
Rice - Field experiments.
Acclimatization (plants).

275. Growth of some rice varieties in NaCl-salinated soils as affected by the season. B. T. Mercado, C. A. Malabayabas and S. R. Gumasing (College of Sciences and Humanities, UPLB, College, Laguna). *Philippine Agriculturist*, June-July 1974, v.58, nos.1-2, p.40-49. graphs, tables, illus. 6 refs.

Experiments with IR-8, IR-20, IR-22, IR-661 and C4-63 showed that the vegetative growth of the plants was better during the wet than during the dry season, with all the varieties surviving the applied NaCl level of 0.4% as against the 0.3% NaCl level for the dry season. Likewise, all varieties responded favorably to the application of 0.1% NaCl during the wet season. In both growing seasons, no varieties survived the 0.5% NaCl level. Delay of flower emergence due to salinity was more marked during the dry than during the wet season. IR-8 and IR-22 were found to tolerate a high level of NaCl during the dry season.

633.18:631.41:631.82
631.41:631.82:633.18
Rice - Field experiments.
Soils - Zinc content - Effect on plants.

276. Zinc deficiency: A widespread nutritional disorder of rice in Agusan del Norte. J. C. Katyal (Aicrip Hyderabad, Rajendranagan A. P., India) and F. N. Ponnamperuma (International Rice Research Institute, Los Baños, Laguna). *Philippine Agriculturist*, Aug.-Sept. 1974, v.58, nos.3-4, p.79-89. map, tables. 15 refs.

The effects of Zn treatments with or without NPK fertilizers on the yield and mineral composition of the lowland rice planted in Butuan and San Miguel soils were assessed. Zn deficiency was minimized by dipping the root seedlings in a 2% suspension of ZnO in water. Zn, with or without NPK further increased the zinc contents of the plants, hastened maturity by 13 days and increased grain and straw yield while at the same time depressed the contents of Mg and Mn. The response to NPK without Zn was a non-significant decrease. The mean responses to Zn with and without NPK were 2.9 and 1.6 t/ha.

633.18.002.67:542.66
Rice hulls - Composition.

277. Alkaline and enzymatic treatments of rice hulls. E. J. del Rosario and Angelina L. Ang (College of Sciences and Humanities, UPLB, College, Laguna). *Philippine Agriculturist*, June-July 1974, v.58, nos.1-2, p.24-29. tables. 13 refs.

The composition and yield values of rice hulls (48 mesh, variety IR-20) shaken with 1, 2, 5 and 10% NaOH at 29°C for one hr were determined. Results showed that rice hulls treated with 1% NaOH had 3.5% protein, 31.4% crude fiber and 21.3% silica, while hulls treated with 10% NaOH had 1.6% protein, 42.5% crude fiber and 16.6% silica. The percentage values of these 3 components for rice hulls treated with 2% and 5% NaOH were roughly intermediate between those for hulls treated with 1% and 10% NaOH.

Results of the saccharification of rice hulls and extraction of hull protein in the presence of cellulose showed that about 5% by weight of rice hulls previously treated with 1% NaOH can be converted into reducing sugars and about 13% of the remaining protein (3.5%) can be extracted.

633.49:631.82
Sweet potatoes - Fertilizers and manures.
Sweet potatoes - Yield.

278. Preliminary report - The relative efficiency of soil and foliar application of urea-phosphorus mixtures on the yield of sweet potato (Ipomea batatas) var. BNAS. V. Iswaran and Antonio Conty (Dr. Manuel L. Roxas Memorial Experiment Station, Bureau of Plant Industry, Lipa City). *Philippine Journal of Plant Industry*, Third Quarter 1974, v.39, no.3, p.163-170. tables. 4 refs.

Results showed that application of 120 kg N as urea and 80 kg P_2O_5 as solophos (20% P_2O_5) per hectare half in soil and the other half on foliage gave significant increase in yield compared with the same dose of N and P applied fully in the soil. The efficiency of foliar application of N and P was 1 1/2 times over the soil application indicating that foliar fertilization was a more efficient method of feeding plants than the usual root feeding. It was also shown that foliar application of urea-phosphorus proved much superior than the soil application of urea-phosphorus at the given rate of fertilization.

633.525.1:631.5
Ramie growing.

279. How to grow ramie. *Modern Agriculture and Industry*, Aug. 1974, v.2 no.8, p.14, 28. illus.

Ramie plants are adaptable in a naturally rich, light-textured, moist soil and grow best in tropical climate with uniform rainfall distribution throughout the year as in Davao and Cotabato. Ramie can be propagated by seeds, stem cuttings, division of the main rootstock and by the widely used rhizome cuttings. A fertilizer rate of 80 kg N, 60 kg P_2O_5 and 60 K_2O/ha. is recommended while higher rates of N and K may be applied to nutrient-deficient soils. The only known white fungus disease of ramie plants can be controlled by uprooting and burning the infected plants. Control of pests attacking plants, such as root-knot nematode, brownish-black noctuied caterpillar and leaf rooler and methods of rejuvenating the ramie yield are given. Only 2 or 3 harvests may be expected during the first year to as much as 5 harvests in subsequent years.

633.526.1:543.8
Manila hemp - Chemical composition.
Manila hemp - Varieties.

280. Seven cordage varieties of abaca. E. U. Escolano. *Forpride Digest*, Sept.-Dec. 1974, v.3, nos.3-4, p.56-57.

The chemical composition of 6 commercial cordage varieties of abaca, namely luno, Bicol sugmad, bulao bungolanon, tangongon, tinawagang pula, tinawagang puti and a non-commercial variety, sabahon, is presented. Their fibers are highly desirable raw materials for pulp production due to their high holocellulose, alpha-cellulose and pentosan contents, and low lignin, ash and extractive contents. Bicol sugmad, bungolanon, tangongon and tinawagang puti appear to be generally superior to the other varieties in terms of alpha-cellulose, 59.0-66.2% and holocellulose contents, 85.3-87.7% and low lignin, 9.7-10.7%, ash, 0.7-1.1% and silica contents, 0.4-0.18%. These chemical characteristics indicate that high chemical pulp yield would be obtained with corresponding low amount of pulping chemical and short cooking time. The average chemical composition of these 7 varieties is close to the average of the 17 commercial grades of handstripped abaca fibers proven to be of good pulping materials.

633.526.1:631.55
Manila hemp fibers - Quality.
Mnila hemp - Harvesting.

281. A study on the critical age of harvesting abaca. Elias O. Oyardo and Zenaida O. Cecilio. *Philippine Journal of Plant Industry,* Second Quarter 1974, v.39, no.2, p.127-142. tables, illus. 4 refs.

The study conducted on single abaca variety "Tinawagan Pula" was based on 4 stages of development, namely immature, mature (flagleaf), mature (flowering) and overmature. Results showed that fibers from immature stalks had better quality fibers than any of the other stalks. However, the highest fiber recovery was observed from the stalks on the flagleaf stage and lowest on the immature stage. Abaca fibers obtained by each stage by grades showed that both immature and overmature stalks produced more 1-grade of fibers, by 33.08 and 30.21%, respectively. Tensile strength of fiber seemed not affected by the different stages of maturity of stalks. The highest fiber recovery was observed from the stalks on the flagleaf stage and lowest from stalks on the fruiting or overmature stage. Results indicated that stalks should be harvested at flagleaf and early inflorescence stages and should not be allowed to reach the overmature stage.

633.61:631.82
Fertilizers for sugar cane.

282. New chemical increases fertilizer potency. *Agricultural and Industrial Life,* Jan.-Feb. 1974, v.36, nos.1-2, p.10.

"Sucromax", a soluble silicon, is a new chemical proven to maximize the effects of fertilization thereby increasing production by as much as 45 piculs/ha. It also increases the sucrose content of sugarcane whose soil silicon analyses are under 100 ppm and extends the milling periods of sugarcane. It is recommended that soils be analyzed to determine the proper amount of "Sucromax" to be applied to the soil during the last harrowing or earlier.

634.0.32
Tree felling.

283. Minimizing end-splitting of logs. II. Effect of 'scissor-type' of felling on the occurrence of end splits. A. S. Decena, D. V. Sibayan and R. Z. dela Cruz (FORPRIDECOM, College, Laguna). *Philippine Lumberman,* Aug. 1974, v.20, no.8, p.40, 42-44. tables, illus. 9 refs.

Forty-seven trees and 63 logs of mayapis species [*Shorea squamata* (Turcz.) Dyer] were studied to determine the effect of ordinary felling, scissor-type felling and combined grooved-scissor type felling techniques in felling trees in minimizing butt end-splits. The combined grooved-scissor-felling technique gave the best result as it greatly minimized end-splitting, which may be attributed to the pre-release of internal growth stresses as a result of grooving before felling the trees and also to the reduction of impact or moment of fall of the tree because of the application of the scissor-type of felling.

634.42:632.4:631.563
Mango anthracnose. Mangoes - Storage.

284. Mango anthracnose and low temperature storage. Tricita H. Quimio (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Oct.-Nov. 1974, v.58, nos.5-6, p.192-199. graphs, tables, illus. 6 refs.

In-vivo and *in-vitro* studies showed that the fungal pathogen, *Colletotrichum gloeosporioides* Penz is only dormant during the 4-wk incubation period at 10°C although the lesion developed very slowly when the inoculated fruits were further incubated at 30°C for another week indicating that storage at 10°C up to 4 wks is only fungistatic and not fungicidal. Further studies however showed that low temperature of 10°C can more or less prevent the disease since the rate of decay was slower on chilled fruits than on unchilled ones. The longer the fruits were incubated at 10°C, the slower was the development of the lesion on the inoculated fruits.

634.42:632.4:632.934
Mango anthracnose - Therapy.

285. Postharvest control of Philippine mango anthracnose by Benomyl. A. J. Quimio and Tricita H. Quimio (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Aug.-Sept. 1974, v.58, nos.3-4, n.147-155, tables, illus. 9 refs.

The lethal dose of Benomyl on the mycelium of *Colletotrichum gloeosporioides* from mango ranged from 275 to 600 ppm. Spore germination of the fungus was not inhibited by concentrations up to 3000 ppm but growth following germination was arrested by as low as 100 ppm. Soaking of fruits artificially inoculated with the fungus up to 3 days earlier into a suspension containing 600 or 1000 ppm Benomyl plus 0.05% Tween 40 for 10 min effectively inhibited decay. Significant reduction of damage due to the disease was also noted in naturally infected fruits treated similarly. The treatment, however, reduced the natural luster of fruits.

634.42:632.4:632.98
Mango anthracnose - Therapy.

286. Postharvest control of Philippine mango anthracnose by hot water treatment. A. J. Quimio and Tricita H. Quimio (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Aug.-Sept. 1974, v.58. nos.3-4, p.138-146. tables, illus. 10 refs.

Newly harvested and fully matured Carabao and Pico mango fruits treated with water at 53°C for 10 min successfully inhibited rotting of the fruits caused by *Colletotrichum gloesporioides*. However, the treatment reduced the natural luster due to lenticular injury. Results also indicated that the thermal death point of *C. gloesporioides* is incidentally very close to the thermal sensitivity of the mango fruits.

634.573:631.53/.54
Cashew nut trees - Cultivation.

287. You, too, can grow cashew for cash. C. M. Cariaga and V. B. Mendoza (Bureau of Forest Development, Quezon City). *Animal Husbandry and Agricultural Journal,* Dec. 1974, v.9, no.12, p.6, 8.

Cashew (*Anacardium occidentale*) can be propagated by direct seeding and by the use of vegetative materials. Direct seeding should be done in the early part of the rainy season at a planting distance of 5 m x 5 m and from 5 to 10 cm deep. For purposes of reforestation work, the initial spacing of 3 m x 3 m should be adopted to aid in suppressing grasses and in providing early shading. However, direct seeding will prove to be successful only if measures for rodent infestation control will be adopted. On the other hand, vegetative propagation is also possible by layering, grafting, budding and cutting. Layering and inarching should be done before flowering, in which the vegetative materials are ready for planting at the onset of the rainy season. Side grafting is believed to be more successful at the end of the fruiting period.

Cashew flowers in the 3rd or 4th yr with its peak on the 10th yr and continues until the 13th yr. Harvesting is done either by gathering the fruits that dropped on the ground or by employing a light, easy-to-handle pole with a hook or knife attached at its end. The estimate yield of cashew is 1000-4500 kg/ha/harvest season.

635.21:632.4
Potato late blight - Therapy.

288. Forecast & control of late blight epidemics on Irish potatoes as affected by local environmental conditions. Valentino G. Balaoing, Teresa M. Balaoing and Juliana C. Surat (Baguio Experiment Station, Baguio City). *Philippine Journal of Plant Industry,* First Quarter 1974, v.39, no.1, p.9-20. graph, tables. 9 refs.

Three spray schedules of fungicide Dithane M-45 in 2 seasonal trials of potatoes (1970-1971 and 1971-1972) were tested to determine the merit of each schedule to the control of late blight infection using the blight-susceptible variety Red Pontiac. Plots sprayed every after 2 warnings for blight occurrence produced losing crops in both seasons, while those sprayed at regular weekly intervals yielded a reasonably moderate control of the disease. Spraying the crops immediately after a recorded warning period for blight occurrence proved effective in suppressing infection resulting to a high production of marketable tubers and economic return.

635.34:631.53 635.34:631.552
Cabbages - Field experiments.
Cabbages - Yield.

289. Effect of coating cabbage (var. K. K.) seedlings with Azotobacter chroococcum and dicalcium phosphate on their yield. A. Conty, C. I. Gonzales and V. Iswaran (Dr. Manuel L. Roxas Memorial Experiment Station, Bureau of Plant Industry, Lipa City). *Philippine Journal of Plant Industry,* Third Quarter 1974, v.39, no.3, p.159-162. table. 5 refs.

Results revealed that dipping the seedlings in dicalcium phosphate was better than applying all the quantity of phosphorus to soil as regards yield and efficiency. Dipping the seedlings in *Azotobacter* culture also resulted in significant yield increase which may be attributed to the growth-promoting substances of *Azotobacter*.

635.34:632.4 632.934
Chinese cabbages - Diseases and pests - Therapeutics.
Cercospora brassicicola.

290. Cercospora leaf spot of pechay (Brassica pekinensis L.) in the Philippines. D. S. Lapis and E. R. Arcillas (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Oct.-Nov. 1974, v.58, nos.5-6, p.167-180. tables, illus. 5 refs.

The disease is caused by a fungal pathogen, *Cercospora brassicicola,* Henn., attacking pechay leaves during all stages of development particularly mature ones. Fungus spores can be disseminated by wind, insects and water. The fungus remained viable from 3 to 4 wks on infected leaves under field conditions and from 4 to 5 mo. when incorporated in sterile soil under laboratory conditions. *C. brassicicola* grew best on potato dextrose, nutrient dextrose, carrot and cabbage agar. Temperature ranging from 16° to 28°C, pH 5-9 and optimum light intensity favored sporulation. The disease can be controlled by sanitation, crop rotation, following and use of fungicides, such as Zerlate, Fermate, Manzate, Kolo 100 and Dithane M-22.

635.53:632.2:595.13
Celery - Diseases and pests.
Meloidogyne incognita.

291. Identification, pathogenicity and host range of a root-knot nematode species attacking celery in La Trinidad, Benguet. M. B. Castillo and J. B. Bulag (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Feb.-March 1974, v.57, nos.9-10, p.345-352. tables, illus. 16 refs.

Based on the perineal patterns of egg laying females and the number of post-labial annules in adult males, the root-knot nematode isolate was identified as *Meloidogyne incognita.* Pathogenicity of the nematode was manifested in both young and old seedlings of celery inoculated with varying levels of nematode egg masses and in those transplanted in soils artificially infected with the same amount of inoculum. On the host range study, cabbage, celery, Chinese cabbage, Chinese pea, eggplant, head lettuce and tomato were susceptible to the nematode while radish and the weeds, *Cyperus distans, Echinochloa staguina* and *Heliotrophium indicum* were all resistant.

635.63:631.52
Cucumbers - Disease and pest resistant varieties.

292. New cucumber varieties. *Philippine Farmers' Journal,* Nov. 1974, v.16, no.11, p.20, 47. illus.

The 2 high-yielding cucumber varieties, CA-73-19 and CA-73-12 developed at the University of the Philippines, Los Baños (Laguna), produce mostly female flowers thus giving a computed yield of 40-50 tons/ha. Harvesting of these early fruiting varieties is done 30 days after seeding at 20-30 times per cropping period compared with 10-15 of the standard varieties. They are resistant to downy and powdery mildews, and oriental virus.

Studies have also shown that out of 24 varieties tested, fruits of these new varieties were found the most suitable for pickling with full fermentation at 90-100%.

635.656:632.35
Cowpeas - Diseases and pests.
Pseudomonas solanacearum.

293. Cowpea, new host of Pseudomonas solanacearum E. F. Smith in the Philippines. A. J. Quimio (College of Agriculture, UPLB, College, Laguna). *Philippine Agriculturist,* Oct.-Nov. 1974, v.58, nos.5-6, p.200-204. tables. 13 refs.

The pathogenicity and cross-inoculation tests of *P. solanacearum,* revealed that the isolate from cowpea was extremely virulent to tomato, eggplant and sweet pepper, and moderately virulent to peanut while isolates from tomato, tobacco, pepper, Irish potato, eggplant and peanut were highly virulent to cowpea. The cowpea isolate was a virulent to ginger and vice versa. Of the 11 varieties of cowpea inoculated, only VCS 15 appeared somewhat resistant to the disease, while all the bush and pole "sitao", navy bean, snap bean and lima bean varieties tested showed susceptible reactions, indicating that the bacterial wilt caused by *P. solanacearum* could be potentially dangerous to vegetable bean production.

ANIMAL HUSBANDRY AND PRODUCE

636.12.088.6:591.11(914)
Race horses - Blood.

294. Studies on equine management. II. The hemogram of Philippine race horses and its correlation with training performance. Helen C. Amparo and Moises Villadelgado (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June-Dec. 1974, v.13, nos.1-2, p.218-234. tables. 17 refs.

A total of 42 training and racing horses showed the following mean blood values: RBC, 944 ± 2.27 million/cu.mm.; PCV, 40.67 ± 2.39%; Hb, 12.68 ± 1.08 mg/100 ml.; MCV, 43.62 ± 5.40 cu. microns; MCHC, 31.38 ± 2.24%; MCH, 12.54 ± 3.87 micromicrograms and ESR, 29.43 ± 14.43 mm/20 min. Compared with the values obtained in the only previous local study of racehorses under training, the RBC count is higher, the PCV value is similar and the Hb, MCV, MCHC and MCH values are lower in the present study. The RBC count is similar and the PCV, Hb, MCV and MCHC values are lower than those reported by most foreign workers.

Attempts were made to relate the hemogram values of 20 horses with their training time. It was observed that horses with higher RBC, Hb and PCV values and lower ESR and MCV values seem to have a better training tract time. It was also noted that PCV and MCV values might give significant positive correlation with training performance. However, in view of the numerous variables attendant to such a correlation, no definite conclusions on the matter were made.

636.5.089:615.778
Poultry - Diseases and pests - Therapeutics.
Coccidiostats.

295. Evaluation of the coccidiostatic effects of Amprol plus, NF-180 and Zoamix on broilers raised on deep litter. Mauro F. Manuel and Jose A. Alcarde (College of Veterinary Medicine, University of the Philippines, Quezon City). *Philippine Journal of Veterinary Medicine,* June-Dec. 1974, v.13, nos.1-2, p.156-162. tables. 8 refs.

Results showed that broiler chicks given Amprol plus-medicated feed gained better weight than those that received either NF-180 or Zoamix-supplemented feeds. None of the birds under Amprol plus medication died of cecal coccidiosis. In contrast, 2 birds each died of cecal coccidiosis in the Zoamix and NF-190 treated groups while 34 died of similar infection in the non-medicated control group. No significant differences were obtained in the feed conversion of all treatment groups.

636.59.082.4
Quails.

296. Raise quails for fun and for profit. *Philippine Farmers' Journal,* Feb. 1974, v.16, no.2, p.32-33. table, illus.

Quails, scientifically known as *Coturnix coturnix japonica* and locally known as "pugo", are brooded artificially in the same way as ordinary chicken. Temperature control are maintained at 97°F, decreasing by about 2°F each succeeding week. Artificial heating may be stopped after the 3rd wk of breeding. Young quail chicks are given sifted ordinary starting mash which are gradually changed to laying mash when the pullet quails begin to lay eggs at about 42 days old. The laying mass are supplemented with 10% fish meal to increase the protein content for better egg production. Properly managed and well-fed quail layers can produce 250-300 eggs/yr and are good for as long as 3 yrs of laying. Quail eggs have relatively bigger yolks, but less albumin and fat than the chicken eggs. However, the amount of protein is the same as the chicken eggs.

636.99.085:632.95
Rats - Feeding - Experiments.
Pesticides - Injurious effects - Man and animals.

297. Effect of diet and chemicals on pesticide toxicity in rats. Cristobal L. Miranda (Food and Nutrition Research Institute, Manila) and Ryland E. Webb (Virginia Polytechnic Institute and State University, Virginia, USA). *Philippine Journal of Nutrition,* July-Sept. 1974, v.27, no.3, p.30-33. tables. 6 refs.

The acute toxicity of Heptachlor or Heptachlor epoxide (HE) was determined in young rats fed gluten or casein diets containing 18% crude protein for 10 days. Heptachlor was found more toxic to rats fed gluten than to rats pair-fed a casein diet, the toxicity of which varies according to the quantity of dietary protein. The toxicity of the pesticide in gluten-fed animals was enhanced by an enzyme inducer phenobarbital (PB) and by an enzyme inhibitor SKF 525-A treatment. PB or SKF 525-A did not modify Heptachlor toxicity in rats paid-fed casein. The differential toxicity of Heptachlor brought about by diet was reported to be influenced by rate of epoxidation of the pesticide in rat lever microsomes. However, the toxicity of HE was not affected by dietary protein levels.

FISHERIES

639.31:581.526.325.2
Fishes - Food and feeding. Plankton.

298. The plankton of Laguna de Bay, the primary basis of milk fish farming in enclosures in the area. Medina N. Delmendo (Regional Fishery Development Office, Laguna Lake Development Authority, Pasig, Metro Manila). *Philippine Agriculturist,* Dec. 1973-Jan. 1974, v.57, nos.7-8, p.335-342. illus. 5 refs.

A pilot project by the Laguna Lake Development Authority on fish farming in pens using milkfish as the farm fish was established based on a report that the higher aquatic plants and the phytoplankton niches are underutilized by the existing fish species. The project produced a very encouraging result paving the way for the rapid development of fish farming in enclosures. It has been shown that the species could be produced in enclosures at considerable rates with a minimum supplemental feeding applied.

639.42
Mussels.

299. Bay mussel fisheries. Rodolfo Pagcatipunan. *Fisheries Newsletter,* April-June 1974, p.12-17. map, illus. 14 refs.

Discussed in detail is the bay mussel cultivation in the Philippines, as well as the mussel gathering procedures from natural grounds. On Bacoor Bay (Cavite), bamboo poles are used as stakes to collect mussel spots. Staking is done throughout the year although better results are obtained from April to Oct. Harvesting at 6-10 mo. after staking or at about 5-8 cm long is usually done by stripping of the bamboo with mussels with the use of an iron bar with a sharp end. On Tinagong-dagat Bay (Capiz), mussels are cultured on the sea bottom. Mussels are picked by hand in knee-deep waters during low tide and placed in a floating tray made of bamboos 4 x 6 ft. Gathering of mussels in other areas of the country is also described.

FOOD. COOKERY

641.1:635.656 641.5(083.1):635.656
Peas - Protein content. Cookery - Peas.

300. Utilization of Mecan pea as a protein supplement. Cristobal L. Miranda (Food and Nutrition Research Institute, Manila), Ignacio S. Pablo and Teresita A. Clemente (Philippine Women's University, Manila). *Philippine Journal of Nutrition,* Oct.-Dec. 1974, v.27, no.4, p.141-146. tables. 6 refs.

The chemical composition, digestibility and acceptability as factors in determining the nutritional values of Mecan pea were assessed utilizing cowpea, "munggo" (red and green), "tapilan" and soybean for comparison. Results showed that the protein content of Mecan peas was slightly higher than cowpea, red "munggo" and "tapilan" but lower than soybean. No significant difference in amino acid content was observed between Mecan pea and other legumes. On the other hand, acceptability ratings were found highly satisfactory in all homemade recipes containing Mecan pea suggesting that Mecan pea is suitable for use in preparing inexpensive, protein-rich recipes.

641.5(083.1):598.412
Cookery (ducks).

301. The study on the utilization of duck into process product. P. L. Madlansacay, L. S. Rivera, T. R. Aducayen and E. S. Contreras (Bureau of Animal Industry, Manila). *BAI Recorder*, Dec. 1974, v.33, no.15, p.9-17. tables. 6 refs.

The study utilizing 2 breeds of ducks, namely Mallard "itik" and Muscovy "bibe" was conducted to determine their dressing value and economic utilization or suitability in some chicken recipes. Results showed that Muscovy, Mallard (commercial) and Mallard (UP) have dressing percentages of 69%, 57% and 50%, respectively. When utilized into ham no significant differences were observed in terms of flavor and acceptability but the addition of phosphate compounds highly improved the quality and yield of duck ham, regardless of source. Following the standardized procedures in the recipes presented, the ducks may be suitably converted into a gainful industry.

CHEMICAL AND ALLIED INDUSTRIES

661.734.2:66.061:633.87
Tannins. Tanning materials.

302. Tannin-extract production from local materials: their utilization for tanning hides and skins. E. V. Gonzales, A. E. Manas, E. I. Mule, J. R. Filamor, C. C. Maza and R. Marero. *Forpride Digest,* Sept.-Dec. 1974, v.3, nos.3-4, p.10-22. tables. 2 refs.

Quality evaluation by tannin analysis (hide powder method), either in raw barks or spray-dried extracts from the barks of kamachile [*Pithocellobium dulce* (Roxb.) Benth], red lauan (*Shorea negrosensis* Foxw.), bakauan (*Rhizophora* spp). and coir dust from the husks of coconut

(*Cocos nucifera*) was undertaken with emphasis on the tannin/non-tannin ratio. Kamachile extract having a tannin/non-tannin ratio of 1:1 was found good source for tannin-extract manufacture and produced sole and upper leathers comparable to those produced from imported mimosa tannin extract. Red lauan tannin extract was found suitable for sole leather tannages only while bakauan and coconut coir dust tannin extracts were found unsuitable either for sole or upper leather tannages.

662.65
Waste fuel.

303. Alternative sources of fuel identified. *Forest & Farms*, Oct. 1974, v.7, no.4, p.19. illus.

Results of a study conducted by the Economic Development Foundation showed that rice straw was the most suitable and economical source of methane gas and had the highest gas-producing rate compared with other agricultural wastes proven to have fuel generating potentials, such as bagasse, coconut coir dust and sawdust. It was also found capable of producing methane and hydrogen gases with a total heating value of 5200 kcal/cu.m.

662.76 662.65
Gas producers. Methane - Manufacture.

304. Build your own generator: from waste to gas. *Animal Husbandry and Agricultural Journal*, May 1974, v.9, no.5, p.6. illus.

Presented is a detailed procedure for constructing a methane gas generator at a minimal amount by making use of ordinary garbage and animal manure. The generator can be used in cooking or in running a gas-operated refrigerator. After 6 mo. of operation, grass clippings, dried leaves, wasted papers, kitchen refuse, rice hull, sawdust and rice straws and other waste materials may be added to "charge" the gererator.

663.2/.3
Wine and wine making.

305. Organoleptic & chemical properties of Philippine fruit wines. Eugenia H. Garcia, Adelaida C. Cahanap and Magno P. Cabrera. *Philippine Journal of Plant Industry*, First Quarter 1974, v.39, no.1, p.25-36. tables. 19 refs.

The quality of fruit wines obtained from kasoy, duhat, guava, lipote, balubat, bignay and katuri was determined. Results showed significant differences by 5% among the wines with balubat wine ranked first, followed by kasoy, bignay, duhat and lipote wines as to their acceptability.

668.44:633.94
Gums and resins.

306. Balau. A. L. Tongson (FORPRIDEDOM, College, Laguna). College, Laguna, Forest Products Research and Industries Development Commission, Nov. 1974. 2p. 9 refs. (Technical note no. 147)

Balau, a resinous oil, can be obtained from apitong (*Dipterocarpus grandiflorus* Blanco), panau (*D. gracilis* Blume) and other related species of *Dipterocarpus* as well as a similar resin from palosapis [*Anisoptera thurifera* (Blanco) Blume]. Exuded by these species, it is similar in composition and consists of solid resin, water and volatile oil (25-40%). It is used locally for caulking boats, interior varnishing and to some extent in medicine as a disinfectant, laxative, diuretic and mild stimulant.

The utilization of these resinous-producing species could be maximized by tapping first the resins or liquid oleoresins before cutting.

WOODWORK AND TIMBER INDUSTRY

674.03.04
Wood treatment.

307. Wood treatment. J. B. Seguerra, Jr. (FORPRIDECOM, College, Laguna). *Forpride Digest*, March-June 1974, v.3, nos.1-2, p.4-6. 8 refs.

Wood can be treated by the non-pressure and pressure methods to protect them from mechanical, physical, chemical and biological deteriorations. The non-pressure method which is suitable for only small volume of wood includes brushing, spraying, dipping, cold-soaking, stepping and hot-and cold-soaking. On the other hand, the pressure method is carried out in a closed cylinder, where the chemicals or preservatives are flooded in the cylinder and pressure is applied to force the chemicals in penetrating the wood. Although this method is more expensive and more complicated, it gives deeper and more uniform penetrations than the non-pressure method. It is generally used where big volume of wood is to be treated and where maximum degree of protection is desired. Some of the chemicals or preservatives used are the water-borne, oil-borne and oil types.

Although wood treatment does not increase the strength of the wood, it somehow makes the service life of the less durable species lasts longer and reduces maintenance cost.

674.03.04:632.4
Wood - Decay resistance.
Wood preservation.

308. Effect of heat on the natural decay resistance of five species of Philippine woods. N. P. Mailum and C. V. Arenas. *Philippine Lumberman*, Oct. 1974, v.20, no.10, p.18-19, 22-24. graphs, tables. 18 refs.

Dry-heat treatment at 90°, 110°, 130°, 150° and 175°C for 240 hrs caused color change from light brown to chocolate brown on the following species of wood: 1) acacia [*Samanea saman* (Jacq.) Merr.]; 2) bagtikan (*Parashorea plicata* Brandis); 3) guijo [*Shorea quiso* (Blco.) Blume]; 4) mayapis [*Shorea aquamata* (Turcz.) Dyer]; and 5) palosapis [*Anisoptera thurifera* (Blco.) Blume]. Prolonged heat treatment of the specimens at 130°, 150° and 175°C showed a marked increase in decay resistance to *Fomes lividus* (Kalchbr.) Sacc. and *Lenzites striata* (Swartz ex Fries) Fries. The present study evidently shows that heating at certain temperature levels is a promising innovation on wood preservation, especially where physical appearance and strength requirement are not of primary importance.

674.04:582.825:66.047
Lumber - Drying.

309. Comparative drying of 1-inch and 2-inch apitong using combinations of drying methods. R. F. Casin and E. B. Ordinario. *Forpride Digest*, March-June 1974, v.3, nos.1-2, p.60-68. graphs, tables, illus. 5 refs.

The 3 drying methods studied utilizing 180 apitong (*Dipterocarpus grandiflorus* Blanco) sample boards were complete kiln drying from green condition, combined predrying and kiln-drying, and combined air-drying and kiln-drying. Results showed that for both thicknesses and runs, complete kiln-drying was more advantageous than the other drying methods because of shorter drying time. However, in places where the climate is favorable, combined air-drying and kiln-drying was considered most advantageous because of its lowest final moisture content, slightly uniform moisture gradients and stresses. The development of drying defects, such as checking, warping, collapse and casehardening did not vary much in both thicknesses. However, defects observed in combined air-drying or predrying followed by final kiln-drying were relatively less than in complete kiln-drying only.

674.243:668.3
Plywood - Manufacture.
Filling materials - Rice hulls.

310. Rice hull powder as a glue filler in plywood manufacture. Part I. Effect on bond quality. Bui Xuan, F. S. Pollisco and R. C. Casilla (College of Forestry, UPLB, College, Laguna). *Philippine Lumberman*, Oct. 1974, v.20, no.10, p.26-28, 30. graphs, tables. 14 refs.

Results of the experiments conducted on mayapis [*Shorea squamata* Turcz (Dyer) using phenol formaldehyde resin revealed that the higher the amount of filler the faster is the rate of increase in viscosity, and the shorter is the pot life of the glue mix. A filler content of 40% exhibited a pot life of more than 2 hrs which is acceptable in plywood manufacture. Dry and boiling shear test showed that plywood panels glued with phenol formaldehyde resin containing 30-40% rice hull filler met the requirements for type I plywood indicating that rice hull powder can be a suitable filler for phenol formaldehyde in the manufacture of exterior plywood.

PULP AND PAPER INDUSTRIES

676.1.02:633.61.002.6
Bagasse. Newsprint paper.

311. Effects of methods of pulping, bleaching and blending on the physico-chemical properties of sugar cane bagasse for newsprint. Hasan Askari Naqvi. Los Baños, Laguna, Graduate School, University of the Philippines, 1973. 13ℓ. 90p. graphs, tables, illus. 60 refs. (Thesis. M. S. in Agricultural Chemistry)

The depithing of bagasse was carried out into 2 stages, namely the dry and wet depithing. The depithed bagasse was subjected to 30 min steaming prior to mechanical pulping. NaOH concentration of 40 g/l at 6:1 liquor to material ratio and 80 min soaking time gave the best results for cold-soda pulping of sugar cane bagasse and a chemical concentration of 1% H_2O_2 and 1% $Na_2S_2O_4$, for cold-soda bagasse pulp bleaching. Based on the strength properties, the experimental newsprint produced out of a mixture of 50% mechanical bagasse pulp, 25% bleached cold-soda bagasse and pulp 25% Puget bleached kraft sulfate pulp met satisfactorily the requirements of the FAO standard quality specifications for bagasse newsprint and was found as good as imported commercial newsprints.

676.19.017
Paper making materials.

312. Properties of mixed pulps. Cesar Q. Bautista. *Forpride Digest,* Sept.-Dec. 1974, v.3, nos.3-4, p.23-35. graphs, tables. 11 refs.

The 2 pairs of pulps African tulip (*Spathodea campanulata* Beauv.) and apitong (*Dipterocarpus grandiflorus* Blanco) and white lauan [*Pentacme contorta* (Vid.) Merr & Rolfe] and apanit (*Mastivia philippinensis* Wang) were combined in varying ratios to determine which strength property dominates the mixture. The African tulip-apitong combination showed that the pulp with high tearing strength influenced the pulp-sheet properties of the mixture and the breaking and burst factors were proportionate with the magnitudes of the pure pulps. In the white lauan-apanit mixtures the sheet density dominated the mixtures while the other pulp-sheet properties, such as the breaking, burst and tearing strengths were influenced in equal proportions.

676.7.02:676.19
Paper board, Corrugated. Bagasse.

313. Mechano-chemical soda pulping and corrugating medium production studies on sugarcane bagasse. Vicente B. Lasmarias and Jaime O. Escolano (FORPRIDECOM, College, Laguna). *Forpride Digest,* March-June 1974, v.3, nos.1-2, p.69-81. tables, illus. 10 refs.

Good quality experimental corrugating boards were prepared from the depithed fibers of sugarcane (*Saccharum officinarum* L.) bagasse, using the mechano-chemical soda process at fairly low concentrations of 6.5-8.0 gm/l and 40-60 min hydrapulper time. Pulp yields ranging from 70.6 to 81.2% varied linearly and inversely with both concentration and pulping time. A change of 7.14 min in pulping time produced the same effect on yield as a 1% change in caustic soda. Regression estimates on pulp yield, burst factor and breaking length at 300 ml Canadian standard freeness showed significant coefficients of determination with caustic soda and pulping time as the estimating variables.

TEXTILE INDUSTRY

677.312.02
Wool industry and trade.

314. Local processing of fleece from indigenous breed of sheep raised in Ilocos Norte. Ramon R. Franco. *BAI Recorder,* Nov. 1974, v.33, no.14, p.29-32, 34. 4 refs.

Discussed is the processing of fleece from sheep into cloth items, which involves shearing, scouring, drying, carding and yarn-making. The processed grease wool is strong, neat, relatively long and has no odor. The yarn can be made into woolen blanket, muffler, bonnets or shawls and can be prepared into 2 ply for knitting and crocheting.

BUILDING INDUSTRY

691.12
Bamboos. Building materials.

315. Bamboo as a substitute for wood. Isidro T. Zamuco. *Modern Agriculture and Industry,* June 1974, v.2, no.6, p.24, 27-38. illus.

Recent studies revealed that bamboo can now be utilized for almost every purpose as wood, such as in the manufacture of particle-boards, pulp and paper and floor tiles. Its vascular bundle provides elastic strength making it desirable as a reinforcing material in concrete edifices. It is resistant to insect attack and marine borers due to its high silica content. Some of its advantages over wood in construction purposes are: 1) it is strong in relation of its weight; 2) easy to transport on account of its lightness; 3) available in most parts of the Philippines; 4) cheap and with good thermal properties; and 5) could be used extensively for construction of cheap but attractive modern rural houses.

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LIST OF PUBLICATIONS ABSTRACTED

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A. PERIODICALS

AUF Veterinary Digest

Acta Medica Philippina

Agricultural and Industrial Life

Animal Husbandry and Agricultural Journal

Araneta Research Journal

BAI Recorder

Bulletin of the J. F. Cotton Hospital

Bureau of Mines Report of Investigation

Chest Diseases

Filipino Family Physician

Fisheries Newsletter

Forest and Farms

Forest Products Research and Industries Development Commission Technical Note

Forpride Digest

Journal of the Philippine Medical Association

Kalikasan

Modern Agriculture and Industry

NRCP Research Bulletin

Philippine Agriculturist

Philippine Farmers' Journal

Philippine Journal of Cardiology

Philippine Journal of Microbiology Infectious Diseases

Philippine Journal of Nutrition

Philippine Journal of Ophthalmolog

Philippine Journal of Plant Indust

Philippine Journal of Science

Philippine Journal of Veterinary Medicine

Philippine Lumberman

Philippine Metals

Philippine Scientist

Santo Tomas Nursing Journal

Silliman Journal

B. OTHER DOCUMENTS

Theses:

University of the Philippines Graduate School